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Original Communications

FACTS EVERY DOCTOR SHOULD KNOW ABOUT THE MORTALITY IN APPENDICITIS.*

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In a paper read before the Medical Society of Virginia at the meeting held in October, 1922, attention was called to the steadily increasing death rate from appendicitis. Since that time, more careful study of the subject has served only to impress upon me its tremendous importance and the necessity of having the medical profession take steps to attempt to reduce the appalling number of deaths annually chargeable to this condition.

Some twenty years ago, during the early days of my medical career, discussions of appendicitis and diffuse peritonitis were frequent in meetings of surgical societies. In 1908, however, Murphy announced the results of the application of his method of treatment of diffuse peritonitis; and this, according to many, closed discussion of the question, so that it is now tabooed at meetings of surgeons. Unfortunately, it would seem that we are far from having reached a satisfactory conclusion concerning appropriate treatment for the simple acute appendix or the more dreaded sequel, diffuse peritonitis, as will be readily appreciated from the following figures.

According to the vital statistics for the registration area of the United States, in the five-year period, 1901 to 1905 inclusive, the annual mortality rate from appendicitis was 11 per hundred thousand population. In the next quinquennial period it had increased slightly, annually being 11.2 per hundred thousand. From 1916 to 1919, it had risen to 12.4; in 1920, to 13.4; and in 1921, the amazing figure of 14.4 per hundred thousand population had been reached. Putting the population of the United States at 110,000,000, by the methods of treatment employed in 1901, 12,000 persons would have succumbed to appendicitis; by our "modern" or "improved" method, the number is actually almost 16,000; indicating that the "improvement" has resulted in the annual sacrifice of almost 4,000 lives.

Nor is this the only evidence that there is something radically wrong with present-day methods of treatment of appendicitis as widely practiced. In a series of patients observed during the years 1901-1905 inclusive and treated conservatively, Ochsner reported a mortality rate of 4.1 per cent from appendicitis. A prominent Virginia surgeon recently stated that the mortality in appendicitis was 10 per cent; and last year, Gatch reported a series of cases treated by modern methods with a mortality of 8.7 per cent.

It is appalling to realize that the annual deaths from appendicitis equal all from salpingitis, pelvic abscess, surgical diseases of the pancreas, spleen, thyroid, gall-stones, and ectopic pregnancy. The annual toll taken by appendicitis almost equals the combined total of intestinal obstruction, gall-stones, and gastric and duodenal ulcer. Impressive as is the actual number of deaths from appendicitis, the figure gains significance when it is recognized that this number is taken from the most valuable of our population. Much is said regarding the mortality from cancer; thousands of dollars are expended in attempts to discover the etiology of this disorder and other thousands in attempts to educate the laity. Cancer takes its toll from the aged, 80 per cent of the deaths from this condition occurring in persons over fifty years of age. Appendicitis affects chiefly those in the productive period of life, 80 per cent of the deaths from appendicitis occurring in persons under 50 years of age. These facts should convince any except those of us who are so blind they will not see or so deaf they will not hear that all is not well in the treatment of appendicitis.

A number of explanations for this remarkable and inexcusable mortality in this disease might be offered. In our humble opinion the most important factor, however, is a lack of

*Read before the Medical Society of Virginia at its fifty-fifth annual meeting, held in Staunton, October 14-17, 1924.

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uniformity in the teaching of this subject throughout the United States. Great medical schools within a few miles of each other teach entirely opposite views. If the same difference of opinion existed among us in the handling and treatment of tuberculosis, diphtheria, lockjaw, etc., the same lack of progress would be shown to exist in those diseases. It is quite evident that this question will have to be settled by a commission composed of the leading surgical teachers of this country and a more or less uniform standard in the treatment of this disease will have to be promulgated. The time is approaching when our Boards of Health will investigate a death from appendicitis just as it does one from diphtheria today. If, in investigating a case, it is found that the mother or a member of a family has given home medication, consisting of cathartics, the dangers of this treatment should be explained to them and in this way protect others. If the family physician is responsible through carelessness or ignorance, his attention should be called to his failure. The surgeon already in reputable hospitals has to explain these deaths to his surgical colleagues.

A few comparisons are not out of place. The cancer death rate is six times that of appendicitis. Approximately 20 per cent of the cancer deaths occur before the age of 50; 80 per cent of the appendix deaths occur before the age of 50; up to the age of 45 there are a few more actual deaths from appendicitis than there are from cancer. Think of what this means from an economic standpoint. In appendicitis following operation and recovery the patient may expect permanent relief. In cancer following operation and survival the patient is not usually so fortunate. The appendix is an easily accessible organ with which we can safely dispense. A large percentage of the cancers are located in inaccessible and vital organs, to say nothing of the tremendous percentage of recurrences after removal of the disease in accessible organs.

If just a small fraction of the publicity that has been given cancer, tuberculosis and crippled children had been given to this subject the benefits would be proportionately as great.

In conclusion, I am perfectly aware of the much hackneyed expression that there are three kinds of lies; lies, damned lies and statistics, and that figures will prove anything. Notwithstanding this, the fact remains that appendicitis with its complications is one of the most serious conditions in surgery with an annual death toll of approximately 16,000 in a population of one hundred and ten millions. The percentage of increase has been about 1½ per cent per year during the past twenty years. It behooves the medical profession to become aroused to the gravity of this situation a little in advance of the legislators of this country.

DISCUSSION.

DR. STUART MCGUIRE, *Richmond*: I think Dr. Willis' paper on the "Increasing Mortality in Appendicitis" is a very timely and important one. I have recently called attention to the same subject in two different articles, but Dr. Willis has presented the facts more clearly and dramatically than I was able to do. I think the present situation is largely due to the failure to teach the facts with reference to appendicitis properly to students in our medical schools and to the failure to instruct young practitioners on the subject in our medical societies and in our medical journals.

Surgeons of my generation were born and bred in the briar-patch of appendicitis discussions. At that time a large part of the program of all medical meetings and a large number of pages of all medical journals were devoted to the subject. Later, there naturally came a reaction and for some years little has been said or written on appendicitis.

I think we should thank Dr. Willis for his paper because, unless something is done, the dearly earned experience of the past will not be transmitted to the doctors of the future.

I have recently had a demonstration of how little some of the best of our recent medical graduates know about appendicitis. Two years ago I added a new assistant to my staff. He was a man of unusual ability and had what would be supposed to be unusual educational advantages, as he had graduated in medicine at the University of Virginia and had spent a year as interne at Johns Hopkins Hospital. His first two weeks with me were very unhappy, as four or five acute cases of appendicitis came in and he absolutely failed to recognize the condition. The cases were so plain that the nurses would be making the preparation for immediate operation while he would be getting an elaborate history and ordering numerous laboratory examinations. He would follow these cases to the operating room in a somewhat critical spirit, because of what he considered failure to make a proper preliminary study. After he saw half dozen suppurating or gangrenous appendices removed, he frankly admitted he did not know anything about appendicitis.

I again congratulate Dr. Willis on his effort to revive interest in what to many of us is an old and almost exhausted subject, but which must be kept actively before the profession and public if we want to save lives which would otherwise be lost.

DR. J. E. RAWLS, *Suffolk*: I don't know of any subject that will impress the average surgeon as much as these cases. Several years ago I wrote a paper on "Time and Mortality," referring to the neglected cases of acute appendicitis that were operated on. One hundred and fourteen reached the hospital within thirty hours from onset, and there was no mortality in the one hundred and fourteen cases; sixty three cases came any time ranging from three

days to fourteen days, and out of the sixty-three cases eight died. Sometimes the pain had been localized a week before coming to the hospital. In this paper I attributed this to neglect at some point. The line of demarcation was the hospital door. There seems to be four classes who are responsible for this neglect before the patient is brought to the hospital: The neighbors coming in and advising the patient; then comes the family of the patient, who does not see the importance of the operation; then the patient himself, and then the family physician. It does seem to me that if you cannot reach the family physician, you should be able to reach the public. The public is becoming educated. About the first thing a patient asks now when he comes into the hospital is, "Doctor, did I get here in time?" They seem to realize that time really does figure in the results they expect to get. I believe if we would get this information in public schools and teach the ordinary symptoms of appendicitis, it would be a good plan. I knew a teacher in the schools in Norfolk to whom I gave a few symptoms of typical appendicitis. I saw her several months later and she said her room-mate had an attack, and she diagnosed it, and she was taken to the hospital and operated on in less than twenty-four hours.

I usually ask these patients if they have pain. They call it "indigestion," and they say, "Yes." "Where did it begin?" "In my stomach." "What part?" "Upper part." "When did it start?" "Yesterday, or last night." "Where is it today?" "On my right side." And I tell you, I haven't run across anything that will give a history of such a pain other than an attack of acute appendicitis. I really believe that you can diagnose fifty to seventy-five per cent of these cases over the 'phone. If you can get the public to realize that you can save fifteen or twenty thousand a year by making early diagnosis, you have done a great deal toward decreasing the present mortality in appendicitis. I believe if you make a mistake you had better make it in favor of the patient, by operating early, it will only be a matter of a little time and money lost. If you delay operation, it may cost the patient's life.

DR. J. SHELTON HORSLEY, *Richmond*: This is a very important paper and should be presented before a joint meeting of the Society. The attention of the general practitioner as well as the surgeon should be called to it. If we can get the general medical profession to understand the significance of the facts that Dr. Willis brings out and then have public opinion behind them, the mortality rate will be greatly reduced. It is impossible to save patients when they are neglected and referred to a surgeon in the late stages of the disease, when they are saturated with sepsis and are practically moribund.

DR. ———: I believe the suggestion made by Dr. Horsley is a good one. The surgeon has kept this information from the physician and I believe it should be brought to the attention of the general practitioner.

DR. ———: This paper has brought out the fact that early diagnosis and immediate treatment is very necessary, and I believe it should be talked about more, and this striking fact in regard to the mortality in appendicitis brought to the minds of as many people as possible.

DR. ———: I first want to thank Dr. McGuire for the information he gave us in a previous meeting in regard to the symptoms of appendicitis. I believe the paper he read at that meeting saved my boy's life. He had an attack one evening about six o'clock and I told my wife I didn't feel at all comfortable about his condition and that night he had chills. We sent thirty miles for a surgeon and he came in at ten o'clock the next morning. The boy's temperature was normal, he did not have any tenderness of pain at all, you couldn't make him flinch. When the surgeon came he said: "I think you are unduly alarmed"; but I told him it was my boy and I thought something should be done at once. When he was opened up the fluid was oozing out and, I am certain, in a few hours the appendix would have broken. He had some nausea and vomiting, but no pain at all.

DR. A. M. SHOWALTER, *Cambria*: This matter has been very forcibly impressed on me. It has been my observation that, in order to help the patient, we often make the mistake of trying to relieve the patient of the pain without operation. I want to call attention to a case: I was called at two o'clock and was with the patient at four o'clock and advised an operation. He refused to be operated on, and wanted something for the pain and, when I told him I would not give him anything, he began to cry and I finally gave him a hypodermic of morphine. The next morning we operated and lost the patient.

I want to mention another case: I was called out at eleven o'clock one night to see a man who had a history of having dysentery for a week. That evening at eight he had taken a severe pain and when I got there his temperature was 103, pulse 110. I explained his condition to the family and they very bitterly opposed an operation and wanted me to give him something to relieve the pain, and I told them I would do it under one condition, and that was that they promise to bring him to the hospital in the morning. The next morning temperature was 98, pulse 110, he had no vomiting nor nausea and felt fine. There was a little tenderness and very little rigidity, and I told the family I could hardly believe it to be the same patient. We went in there and found the appendix tucked up under caecum and the end sluffed off, and there was a little pocket of pus.

It is my opinion that pain is one thing that drives the patient to the operating room, and, if we remove that, you put them in a position to neglect what should be done at once—that is, an operation. In other words, the indiscriminate use of narcotics for acute appendicitis cases has been responsible in my opinion for more deaths than perhaps any other known cause.

DR. MURAT WILLIS, *Richmond*, closing the discussion: Many of the papers read in the Surgical Section this morning should have properly been read in the Medical Section. I feel that it is particularly true of the paper I have just presented. We will never be able to lower the mortality in certain acute abdominal conditions without first reaching the great body of the profession and through them the education of the public. I feel that, if a number of medical papers were published in lay journals, a great deal of good could be accomplished. So much of the mortality in acute abdominal conditions is due to home medication, principally cathartics, and this can never be controlled until there is a thorough appreciation on the part of the mother and other members of the family that cathartics are absolutely contraindicated in the presence of abdominal pain; and, further, that no life was ever saved because of a purgative in the presence of pain, but on the contrary many lives have been lost through its administration.

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THE EARLY DIAGNOSIS OF INTESTINAL OBSTRUCTION.*

By L. G. RICHARDS, M. D., Roanoke, Va.

The subject of this paper embraces a field so vast, being intimately associated with and having involvements with practically every organ in the abdominal cavity, that one could be easily led astray, were he not mindful of the more rational course and restrict himself directly to the title of the paper, "The Early Diagnosis of Intestinal Obstruction."

In all the domain of medicine and surgery there is no condition where an early diagnosis is of more urgent import. We may unguardedly, now and then, allow an appendix to go on to perforation without seriously endangering the patient's life; we may in gall-bladder conditions make a tentative diagnosis and await developments. We may even argue the question of a leaking gastric or duodenal ulcer, until Nature, for the time at least, saves the patient's life. But in the case of intestinal obstruction, an early diagnosis is all important. It may mean, on the one hand, a simple surgical procedure; on the other, a serious major operation under most unfavorable circumstances.

How are we to make an early diagnosis in intestinal obstruction? First, we *must* consider cause. We cannot intelligently draw conclusions or rule out this or that positively in a given case without thorough knowledge of cause and effect.

The cause of ileus has been classified by many authors. I shall mention the one suggested by Ashhurst: First, adynamic obstruction, that form due to bacterial toxins, resulting in paralysis of the muscular tunic of the bowel; also from lesions in spinal cord. Second, dynamic obstruction, chiefly due to lead poisoning. Third, occlusion by changes within the lumen of the bowel, such as fecal impactions, gall-stones or other foreign body; changes in the wall of the bowel, such as congenital malformations, or gradual occlusion by a tumor or constricting cicatrix. Pressure from outside by tumors or neighboring organs. Fourth, strangulation of intestine by peritoneal bands or adhesions; intussusception, volvulus and internal hernia.

Again, we classify intestinal obstruction as acute and chronic, bearing in mind that chronic intestinal obstruction may become acute, whereas, acute rarely become chronic.

Symptoms.—What are the symptoms of intestinal obstruction? Text-books tell us they are well-marked, easily recognized. This I deny. They read alike: pain, vomiting, constipation, markedly increased peristalsis, visible in thin abdominal walls. We all know this is true in the majority of cases and the diagnosis is easy; but there is another class of cases where the picture is all wrong; where the absence of one or more cardinal symptoms leaves us in doubt. However, by keeping in mind cause and effect, and by the process of elimination, we may in the majority of cases make a sufficiently early diagnosis to save our patient.

Quite frequently it is difficult to determine its site, or to determine the nature of the obstruction.

According to Fitz, strangulation will be present in about thirty-five per cent of cases; intussusception thirty-five per cent, volvulus fifteen per cent, gall-stone eight per cent, stricture or tumors six per cent. He also states that acute obstruction is usually due to strangulation or intussusception, less commonly to volvulus.

In intussusception the patient is usually a child; marked tenderness, mucus and bloody stools make the diagnosis easy. In volvulus, the diagnosis is not so easy; the patient is rarely under forty years of age; onset, acute; distention, marked tenderness and rigid abdominal walls.

Fecal obstruction is usually chronic and found in older subjects; fecal vomiting occurs late, if at all; a mass can be felt along the distended colon; this, with history of case, makes diagnosis easy. Strictures resulting from syphilis, malignancy, tuberculosis or due to tumors, are chronic in nature, which can in due time be recognized.

There is another form of obstruction with which we have to deal quite frequently—adynamic ileus, the result of sepsis. We find it in acute toxic poisoning, where the intestinal muscularis loses its motor activity, and in lesions of the spinal cord.

Differential Diagnosis.—We must distinguish acute intestinal obstruction from acute enteritis with pain, intestinal paresis, tympany and vomiting, acute hemorrhagic pancreatitis, also acute diffuse peritonitis and

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1925.

other less important conditions. Again the question arises, how are we to make an early diagnosis in intestinal obstruction?

This paper will have served its mission if it carries home this one point, namely, that the patient's life is more important than the diagnosis, be it early or late; that with the means we have at hand today we should try to relieve our patient: if we fail within a reasonable time, our duty is clear—his abdomen should be opened and a positive diagnosis made later. The report of a recent case explains fully.

Mr. B., machinist, age 37, past history negative save colicky pains in upper abdomen, coming on at intervals of every few weeks, covering a period of about six months. These attacks had been diagnosed acute indigestion by the attending physician and relieved by large doses of salts. Patient retired feeling perfectly well: at five o'clock in the morning he experienced severe pain in upper abdomen. He took his usual dose of salts, but grew worse and was sent to the hospital. Consultation, which was demanded, resulted in delay. The symptoms as seen at this time were shock, severe pain—which was continuous—midway between umbilicus and ensiform appendix, temperature sub-normal, no distention, no increased peristalsis. Reflexes were normal. Urine normal. Consultation followed consultation: gall-stones was suggested as a possible explanation, gastric ulcer, acute pancreatitis; abdominal pneumonia *et cetera*.

Operation was performed at 7 P. M. The abdomen was full of a dark, bloody exudate: in the left hypochondriac region we found an hour-glass condition caused by a peritoneal band, thus explaining why, in previous attacks, large doses of salts relieved the symptoms. We had here a chronic condition becoming acute. Four and a half feet of dark gangrenous gut was resected. His condition was hopeless at time of operation.

It is far better to operate unnecessarily now and then, than lose a life, the result of delay.

507 *MacBain Building*.

DISCUSSION

DR. ———: I think this is one of the most important papers that has been read at this session. I see this every day, almost, and I know the mortality is reckoned by the time from the onset to the operation. This is one thing that should be taught to the general practitioner. That is where the responsibility lies—with the one who sees the patient first. Life is more important than diagnosis, and an effort should be made at once to find the trouble.

DR. MURAT WILLIS, *Richmond*: I am very much interested in Dr. Richard's paper on the "Early Diagnosis of Intestinal Obstruction." In recent years I have made a very careful statistical study of the mortality in acute abdominal lesions, and this is one of the few abdominal conditions in which there has been a slightly decreasing death rate during the past ten years. This decreasing mortality, in all likelihood, is due to the prompt diagnosis, early surgical intervention and, in the more advanced cases, doing as little surgery as possible. Extensive operation in the late cases usually means disaster.

DANGERS OF FREQUENT AND UNNECESSARY EXAMINATIONS PER VAGINAM DURING LABOR.*

By MILLARD B. SAVAGE, M. D., Norfolk, Virginia.

The larger maternity clinics gave statistics of a morbidity rate ranging from 5 to 20 per cent in confinement cases conducted under the most ideal and aseptic conditions. They have shown that puerperal sepsis increases directly in proportion to the number of vaginal examinations and other manipulations made during labor, which proves that there is always a definite risk and a real danger from vaginal examinations made during labor.

The average obstetrical case, when conducted in the home, at its best is not satisfactory in relation to asepsis, and every internal examination carries with it a potential danger of puerperal infection.

If the morbidity rate in obstetrics can be reduced to any degree by a limitation of internal examinations without increased danger in other ways to the mother or child, we should bend our efforts in the direction for that improvement. Far too many vaginal examinations are made without due consideration as to what complications *might arise*, which would require interference of some nature: and whenever an occasion for operative delivery does arise, it is a feeling of satisfaction to have a clean case rather than a potentially infected case upon which to begin the operation.

Polak and Beck,[1] in a study of 200 cases coming to Cesarean section, have shown the effect of vaginal examinations upon their morbidity rate. The morbidity rate for cases upon which abdominal and rectal examinations alone had been made was 28.8 per cent compared to 52 per cent in the cases which had been examined per vaginam. They also showed that the morbidity rate was reduced approximately half in cases which were examined in the hospital alone, compared to those examined out-

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

1. Polak and Beck. **Surg. Gyn. & Obs.** 1922. P. 566.

side of the hospital and previous to admission. Their statistics concluded that early rupture of the membranes and hours of labor were factors which increased the morbidity rate, together with the greater factor of too frequently and carelessly conducted vaginal examination. The mortality rate in the same series of cases was 3.3 per cent in the clean cases, and 14.6 per cent in the potentially and frankly infected cases.

Polak[2] has quoted a record of 5,000 consecutive confinements which were attended by senior students in the Out-Patient Department of the Long Island College Hospital, of Brooklyn, in which there were no deaths from puerperal infection. No vaginal examinations were made and the progress of labor was watched by abdominal and rectal examinations. These statistics are significant of the fact that some of the danger of puerperal infection from too frequent and careless vaginal examination can be eliminated, and that such examination is not a matter of routine necessity. If graduate students are able to conduct a series of cases with only rectal and abdominal examination by which to judge the progress of labor, and can obtain this result, the average physician should in a like manner strive to equal their enviable record.

We have a regulation which governs the practice of midwifery, and it reads that, "Midwives are prohibited from making examinations by passing their fingers into the birth canal." A physician is trained sufficiently in asepsis for making internal examinations, but we are also familiar with its dangers which are great enough to cause us to hesitate in making them, and to reserve the examination for the unusual case, rather than to make them routinely.

Prenatal examinations are desirable and important because a diagnosis can be made in some cases, in which we can predict a slight prolongation of the labor because of various conditions, such as funnel pelvis, contracted pelvis, abnormal positions, twins, and fibroid uterus. These cases can be watched with a careful expectancy without the necessity of making frequent examinations in order to determine the cause for the arrest of labor.

It is the prolonged cases of labor which are examined most often, and these are the *very ones* in which the dangers of puerperal infection are increased. Approximately 25 per cent of all dry labors are prolonged, particularly the primiparous, and frequent examination in dry labors are the more to be avoided, because both premature rupture of the membranes and hours of labor are predisposing factors to the incidence of puerperal infection.

Where the membranes have ruptured prematurely, the acid reaction of the normal vaginal secretion and its bactericidal power is removed, because the gradual escape of the amniotic fluid substitutes an alkalinity which is said to favor the pathogenicity of the vaginal flora, and this has been advanced as a possible explanation for the greater frequency of puerperal infection with premature rupture of the membranes.

Pre-existing infection of the birth canal contraindicates vaginal manipulation, and cases may arise where a Cesarean section is indicated with an arrested labor which ordinarily would be delivered by forceps or version. In this case the danger of carrying the infection high into the uterine cavity would be very great, more so than with the Cesarean section. During a test of labor on this occasion, rectal and abdominal examination could be used to an advantage.

How can we obtain the necessary information concerning the progress of labor without resorting to the routine vaginal examination? There are many men who have become very proficient in the use of rectal and abdominal examination, and these men found out from experience that the percentage of correct diagnoses increased steadily with the use of this method. Lankford[3] states two basic reasons for rectal instead of vaginal examination: 1. "It is safer for the patient," and, 2. "It is more convenient and time saving for the attendant."

By rectal examination, we can learn the condition of the cervix, the amount of dilatation, and the engagement or descent of the fetal parts. After a dilatation of four or five fingers, the fontanels and sutures are palpable, and one should suspect, if not diagnose, a prolapsed cord or placenta previa. Jegge[4] has brought forward a method by which he determines the dilatation of the cervix by means of measuring the height of the contraction ring in finger-breadths above the symphysis. He states that the os is fully dilated when the ring measures four finger-breadths. The con-

2. Polak. **Gyn. & Obs.** Monograph. 1921. P. 74.

3. Lankford. **Southern Medical Journal.** October, 1923.
4. E. P. Davis. Progressive Medicine, September, 1920.

traction ring is found by palpation of the ridge where the thin elastic segment joins the contractile muscle of the uterine body. The diameter of the external os increases directly with the height of the ring and, when the contraction ring is not palpable above the symphysis, the external os will not be larger than a half dollar in size. We can keep close observation upon the fetal heart by means of auscultation, and complications with fetal distress should be recognized very early.

The location of the fetal heart sound is often helpful in that the point of maximum intensity moves lower with active progress in labor. During the latter stage of labor, the fetal heart sound usually becomes more distinct and is heard best very low upon the abdomen and on both sides directly above the symphysis. By combining the rectal and the external examinations, we should learn enough as to the progress of labor in the average case, and by this means we can reserve the vaginal for the more complicated cases, such as placenta previa, accidental hemorrhage and arrested labors. And whenever we do make the examination which is considered necessary, we should do it with the most complete aseptic precautions and with full realization as to the danger which it carries.

The following is a case report of a death following puerperal sepsis. The first stage of labor was very much prolonged, during which time frequent and unnecessary vaginal examinations were made in the home. After admission to the hospital, complications were found to exist which required intravaginal and uterine manipulations, which had to be done upon an already frankly infected case. This case prompted the writing of this paper.

Hospital Clinic Case: Age twenty-three. Married eight years. Para 6. Family History: Negative: Past History: Negative. Menstrual History: Negative. Obstetrical History: Four children living, ages of seven, six, four and two, respectively. One still birth in 1923; fetus was macerated. Was in labor several days. Patient had a miscarriage during latter part of 1923. Other labors were normal. Present pregnancy negative other than some edema of feet during the past month. Patient was estimated to be approximately at term.

On admission the patient appeared to be in very active labor. She stated that the onset of labor pains dated nine days previous to hospital admission. During that time she had been attended in her home by a physician who saw her each day and examined her per vaginam two or three times each twenty-four hours. She had not felt fetal movements for over three days and the membranes had ruptured five days before coming to the hospital. She complained of very much pain, mostly throught the lower abdomen. When examined she was found to be tender over the entire abdomen and the uterus was in a state of tonic contraction. Her temperature was 101.2° and pulse rate was 100. No fetal heart sound could be heard and no fetal movements were made out. Rectal examination was very painful. The head was dipping into the pelvis with two fingers dilatation, and the softening of the cervix was yet incomplete. No cause for the arrest of labor was determined at this time. Inspection of the perineum showed a bichloride dermatitis extending around the external genitalia and upon the inner surface of both thighs.

A number 5 Voorhees' hydrostatic bag was inserted under ether anaesthesia with ¼ gr. of morphia and 1/200 gr. of hyoscine as a preliminary. Five hours later the bag was expelled, and this was followed immediately by a precipitate delivery of the fetus, which appeared to be full term. The fetus was macerated and there was a foul odor present. Two hours later, the placenta was extracted manually after other methods of delivery had failed. A Bandl's contraction ring with its greatest thickness to the left and posteriorly was encountered when the manual extraction of the placenta was attempted. Sufficient relaxation of the ring in order to extract the placenta was obtained under deep ether anaesthesia, after which an intrauterine douche of warm saline and 2 per cent iodine solution was given.

At the termination of labor the patient's temperature was 105.4° and the pulse rate was 160. One hour after labor the temperature dropped to 103.4° and the pulse rate to 140. The patient appeared very toxic and was given 1,500 c.c. of saline subcutaneously.

First day after labor: During the night the temperature dropped below normal and the pulse rate remained up at 120. The white cell count was only 6,000, with 95 per cent of polymorphonuclears. The patient complained of increasing pain through the entire lower portion of the abdomen, and a slight spasticity of the recti muscles was noted. She was given 30 c.c. of a 1 per cent mercurochrome solution intra-

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venously. Within thirty minutes the patient began to bleed freely from the uterus and the uterine cavity was packed.

Second day after labor: Patient was semiconscious and the temperature had climbed to 103.5° during the night. Pulse rate became fast and irregular. Five hundred c.c. of blood was transfused by the direct method, but patient expired some hours later.

Abdominal autopsy revealed an empty uterine cavity and a purulent pelvic peritonitis. Gross section of the uterus showed areas of infection and necrosis involving the entire wall in many places.

Summary: The main points which were intended to be brought out in this paper are as follows:

1. Vaginal examinations during labor carry with them a certain amount of danger from puerperal infection even when conducted under the most ideal and aseptic conditions.

2. Too frequent vaginal examinations are made in prolonged and complicated cases, in which cases the danger from puerperal infection is very much increased.

3. The amount of information necessary concerning the progress of labor in the average obstetrical case can be obtained by rectal and abdominal examination.

4. Vaginal examination should not be a matter of routine, but it should be reserved for the unusual case, and the number of examinations should be reduced to a minimum and should be conducted under the most strict asepsis.

400 *Fairfax Avenue.*

DISCUSSION.

DR. L. M. ALLEN, *Winchester*: The subject of vaginal examinations is a very old one, but discussion of it is valuable because of the fact that they are being frequently, and, generally speaking, unnecessarily, employed. Diagnosis of abnormal conditions should be made before labor. It is seldom now that obstetric cases are seen for the first time when in labor. They usually come to the physician early, and all abnormal conditions should be recognized before labor begins when danger of infection, if vaginal examination is necessary, is not so great. The danger of vaginal examination has been thoroughly demonstrated. Generally speaking, the vaginal canal does not contain pathogenic bacteria. It is ordinarily safe from them unless they are introduced from without by the examining finger. I should like to emphasize what has been already stated, the absolute lack of necessity for vaginal examinations. In my own experience I have made vaginal examinations in only about one per cent of my cases, and even those who come to operation frequently do so without vaginal examination. Hands which have been properly educated in abdominal palpation can recognize everything which could be recognized by vaginal examination. Practically everything except the amount of dilation of the cervix can be determined without it. Now, what does it matter whether the cervix is the size of a half-dollar, a dollar, or, as is sometimes said, two dollars! The progress of labor does not depend upon the dilatation of the cervix. If there is no other trouble and the uterine contraction is good, and it is as a rule, it is my experience that, unless there is mechanical obstruction, the uterine contractions will be effective. So, what difference does the size of the cervix make? All vaginal examinations to find this out are unnecessary. Practically everything recognized by vaginal examination can be recognized by abdominal and rectal examination. Dr. Savage brought out this subject well in his paper. I feel that it is very important.

DR. MILLARD B. SAVAGE, *Norfolk*: In closing, I wish to thank Dr. Allen for his kind remarks. I feel that if we can reduce the mortality rate from puerperal sepsis, which is estimated as high as fifty per cent of the total mortality from child birth, we will have done a great deal.

A STUDY OF THE ETIOLOGY OF HEART DISEASE IN VIRGINIA.

A Preliminary Report.*

By J. EDWIN WOOD, Jr., M. D.,
and
THOMAS DUCKETT JONES, M. D.,
University, Va.

Hoping to obtain a better impression of the causes of heart disease in Virginia, we started a clinical study of this subject at the University of Virginia Hospital one year ago. From October 1, 1923, to October 1, 1924, 150 cases of definite organic heart disease, coming through the medical wards and medical outpatient department of this hospital, were etiologically classified. A few private room cases also appear in this series. This does not represent the total number of heart cases occurring in this hospital for the year but a majority of such a number which we have seen personally and investigated by history, physical examination and laboratory methods.

Only the cases presenting the cardinal signs and symptoms of organic heart disease have been included in the study and the "nervous heart" and functional rhythm changes, including paroxysmal tachycardia, have not been considered unless accompanied by organic heart disease. The number of cases is not yet sufficiently large to iron out the errors in such an attempt but the personal study given each case we believe offsets this to a large degree and makes this preliminary report of some value at least in outlining a program for the prevention of heart disease in our State.

*Read before the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

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The etiological analysis of the cases here presented is based entirely upon the classification of heart disease suggested by White and Myers.[1] This method is founded upon their own experience in the Cardiac Clinic of the Massachusetts General Hospital and upon the writings of Mackenzie, Lewis and Cabot. We will outline briefly the different groups into which our patients have fallen.

I. The Hypertensive group here includes the cases in which continued high blood pressure has caused cardiac hypertrophy. Congestive failure may occur when the myocardium becomes fatigued or when cardiosclerosis occurs with advancing age, or in the event of infection or added uremia.[2]

II. Arteriosclerotic heart disease is the resultant of coronary sclerosis and fibrosis of the myocardium, syphilis having been excluded.

III. The Rheumatic heart disease group represents the cases associated with a previous history of rheumatic fever, chorea or chronic tonsillitis and also the individuals with mitral stenosis though no definite history of previous rheumatic infection can be obtained.

IV. The Syphilitic group comprises the cases of aortic regurgitation and aortitis (with or without aneurysm) and myocardial disease without other cause and occurring with proved syphilis.

V. Thyroid heart disease is characterized by cardiac hypertrophy often showing auricular fibrillation, not infrequently paroxysmal, occurring with chronic hyperthyroidism.

VI. There were three cases of congenital heart disease indicating by history and physical examination some cardiac malformation since birth.

The first table (Table I) indicates the number and percentage of the cases falling into the groups above described with sex, race and age tabulations for each division. A correction must be made in interpreting this table. For the two years ending June 30, 1923, the ratio of white to negro admissions in the University of Virginia Hospital was as 3 to 1. With this correction our study indicates a greater incidence in the negro than in the white. This seems to be substantiated by the death rate from heart disease in Virginia for 1921 which was 172.6 per 100,000 negroes and 122.5 per 100,000 whites.[3] A larger series than ours will be necessary to indicate accurately race incidence. Males preponderate slightly over females in the total series this being due to the distinctly greater number of males in the

TABLE I.

AN ETIOLOGICAL STUDY OF HEART DISEASE IN VIRGINIA.

Groups	Occurrence in 150 Clinical Cases		White		Negro		Male		Female		Av. Age	
	No. Cases	% of Total	No. Cases	% of Group	No. Cases	% of Group	No. Cases	% of Group	No. Cases	% of Group	Male	Female
I Hypertensive	51	34	32	62.8	19	37.2	25	49.1	26	50.9	52	53
II Arteriosclerotic	40	26.6	30	75	10	25	30	75	10	25	68	58
III Rheumatic	34	22.6	29	85.3	5	14.7	19	55.8	15	44.2	30	32
IV Syphlilitic	10	5.6	3	30	7	70	7	70	3	30	48	35
V Thyroid	4	2.6	3		1				4			40
VI Congenital	3	2	2		1		2		1			
VII Unclassified	8	5.3										
Total			99		51		83		67			

arteriosclerotic group. There were certain other findings of interest in each group that can be briefly summarized here.

Group I.—Hypertensive.—The left border of cardiac dulness in all but five of the fifty-one cases in this collection was 1½ cm. to 5½ cm. outside the midclavicular line. In the excepted five cases examination was unsatisfactory because of obesity. Two of the five were long standing cases of hypertension, two had congestive heart failure, and one presented a very large heart at autopsy. Of the fifty-one hypertensive cases twenty-four showed congestive heart failure and two gave definite histories of paroxysmal heart pain[1] (angina pectoris). All except eight of the fifty-one cases had systolic blood pressures of 170 mm. of mercury or greater, and diastolic pressures of 100 mm. of mercury or greater. Of the eight cases with relatively low blood pressures four showed previous manometer readings of 200 mm. of mercury or over, by our records, three had definite histories of previously high blood pressure figures, and one had pronounced cardiac hypertrophy at thirty-three years of age without evidence of syphilis, valve lesion or adhesive pericarditis and a blood pressure of 160 systolic and 92 mm. of mercury diastolic pressure. Clinically, forty-nine of this hypertensive group seemed to have normal rhythm (or often with premature beats) and two auricular fibrillation verified by electrocardiogram. Twenty electrocardiograms were recorded, two showing auricular fibrillation, one partial heart block not due to digitalis and one right bundle branch block, the remainder showing left axis deviation, ectopic beats or normal rhythm. Chronic nephritis was demonstrated in forty of the fifty-one cases, the remaining eleven cases having either "essential" hypertension or doubtful chronic nephritis. All of the cases had negative Wassermann reactions except in two instances in which this test was not done. These two had no history or physical evidence of lues. Without doubt a number of the cases in this group also had cardiosclerosis. We have, however, made an effort to include here the cases with cardiac hypertrophy due to long standing high blood pressure. Cardiosclerosis appears as an added affection often occurring as a contributory cause in the production of congestive failure.

Group II.—Arteriosclerotic.—Twenty-four of the forty patients studied in this division presented a left border of cardiac dulness 1½ cm. or more outside the mid-clavicular line, while the remainder were normal in size or slightly enlarged to physical examination. This collection showed a distinctly smaller heart on the average than the hypertensive group. Congestive heart failure occurred in eighteen cases, anginal heart failure in eight cases and a combination of both in two cases. Seven of those with anginal failure gave a conclusive history of paroxysmal heart pain (angina pectoris) and five of these were observed during attacks. Of the seven cases of angina pectoris all were whites. Although we have several times seen marked coronary sclerosis in the negro heart at autopsy, we can recall no instance of paroxysmal heart pain occurring in the clinical histories of these cases. This requires further study. A systolic blood pressure of over 170 mm. of mercury occurred once in Group II and only three cases had as high as 170 mm. of mercury systolic blood pressure. All Wassermann reactions were negative except three not taken and one positive. Two of the three not taken had auricular fibrillation with no evidence of lues and the third died in uraemia, at seventy-eight years of age, with no indication of syphilis. The one positive Wassermann in this group had auricular fibrillation before he acquired a primary luetic lesion. Clinically, there were sixteen cases of auricular fibrillation, ten of these being verified by electrocardiogram. Of the twenty-nine electrocardiograms recorded, ten were interpreted as auricular fibrillation, three partial heart block and five showed marked aberration of the Q R S complex, three of these five having right bundle branch block. From the foregoing data it will be seen that heart pain and abnormalities of cardiac rhythm are more common in this group than in Group I.

Group III—Rheumatic.—Table II indicates that all but five of this group gave a history of previous rheumatic infection. All cases of valvular heart disease were diagnosed by diastolic murmurs typical of the lesion in question except of course the three cases of mitral regurgitation. Both cases of so-called rheumatic myocarditis, possibly better termed carditis, presented inversion of the "T" wave in all leads of the electrocardiogram in the absence of digitalis administration. One of these had congestive failure following two attacks of rheumatic fever; the other has been followed one year and has had acute pericarditis and two attacks of paroxysmal auricular fibrillation

in this time. Congestive failure occurred in eleven of the thirty-four rheumatic cases. Only one positive Wassermann appeared in this group, this occurring in a typical case of mitral stenosis without aortic regurgitation or X-ray evidence of aortitis. Two cases failed to have Wassermann tests recorded but both had mitral stenosis and a clear history of rheumatic fever. They were seventeen and twenty-four years of age respectively. Clinically, there were three cases of auricular fibrillation besides two cases of paroxysmal auricular fibrillation, all verified by electrocardiograms. The remainder clinically apparently showed normal rhythm or premature beats. However, out of nineteen electrocardiograms recorded, five were interpreted to be auricular fibrillation (already mentioned above), four partial auriculo-ventricular heart block, one transient sino-auricular heart block, one right bundle branch block, and two with abnormal "T" waves not due to digitalis. The remaining six showed normal rhythm or ventricular premature beats.

TABLE II.

Rheumatic Group III	No. Cases
History of Rheumatic Fever and Tonsillitis	21
Chorea	3
Chronic Tonsillitis	5
No Previous Rheumatic History	5
Mitral Stenosis	15
Mitral Regurgitation	3
Aortic Stenosis and Regurgitation	2
Aortic Regurgitation	4
Aortic and Mitral Disease	8
Myocarditis	1
Acute Pericarditis and Myocarditis	1

During the entire year of study only one case of sub-acute bacterial endocarditis came under our observation. Streptococcus viridans was recovered by blood culture repeatedly in this instance. The patient was afflicted with rheumatic heart disease and mitral stenosis of long standing before this fatal affection set in.

In the Syphilitic Group the Wassermann tests were all positive with one exception. This one gave birth to a child with congenital lues shortly before coming into the hospital for study. This, in addition to her rapid improvement under anti-luetic treatment, caused us to classify her aortic regurgitation as luetic in origin. There were eight cases presenting the signs of aortitis and aortic regurgitation, three of these showing X-ray evidence of aortitis and one an aortic aneurysm. The other two cases were diagnosed luetic myocarditis. Three of the aortitis patients gave a history of high substernal pain, one of these dropping dead at the age of thirty-five. One of the cases of myocarditis had praecordial pain with radiation down the left arm on exertion. Three of the four electrocardiograms in Group IV indicated normal rhythm while one apparently showed auricular standstill with idio-ventricular rhythm, possibly due to overdosage with digitalis.

Four thyroid hearts have been studied. The history suggested long standing hyperthyroidism in each case and the basal metabolic rate was greater than +40 per cent of the normal in each. One had paroxysmal auricular fibrillation, one established fibrillation, and two normal rhythm, all verified by electrocardiogram. All gave evidence of cardiac enlargement by physical examination.

Three suspected congenital hearts have been here included. Two were thought to have some interventricular septal defect and one patent ductus arteriosus. In one of the first two and in the latter marked right axis deviation by electrocardiogram was present.

Of the eight unclassified cases four gave evidence of marked cardiac enlargement probably due to chronic adhesive pericarditis. Three instances of aortic regurgitation remain unclassified etiologically, as well as another case of unexplained cardiac hypertrophy with congestive heart failure.

Comment

Hypertensive heart disease is the commonest form of heart disease in this study. Fahr[5] believes this to be generally true and estimates that 50,000 people in the United States die from this cause yearly.

We are unable to ascertain the incidence of rheumatic heart disease in other Southern states as no similar etiological studies of heart disease have appeared in the literature of the past five years. However, a recent study by Faulkner and White,[6] with one addition by ourselves, shows the percentage of total medical cases of rheumatic fever or chorea entering representative hospitals of four Southern states. The University of Virginia Hospital shows a distinctly higher percentage of these two affections than three other Southern hospitals and a little more than half of that given by the Peter Bent Brigham Hospital, of Boston. Cabot's rheumatic heart disease group is about twice as large as ours as it should be if the in-

TABLE III[6]

Hospital	Years	Average Annual Medical Admissions	Average Annual Cases of Rheumatic Fever	Average Annual Cases of Chorea	Percentage of Total Medical Cases of Rheumatic Fever and Chorea
Peter Bent Brigham Hospital, Boston	1918-1922	2,480	22	9	1.3
Hospital of the University of Pennsylvania, Philadelphia, Pa.	July, 1922 to July, 1923	1,518	10	7	1.2
Charity Hospital, New Orleans	1920-1923	5,349	17	11	.4
Baptist Memorial Hospital, Memphis, Tenn.	1920-1923	3,073	3.5	3	.2
University Hospital, Augusta, Ga.	1918-1923	2,500	1	1	.08
University of Virginia Hospital, University, Va.	June, 1921 to June, 1923	1,384	4.5	3.5	.58

TABLE IV

Groups	Cabot[7] Massachusetts General Hospital, Boston		Hamilton[8] Boston City Hospital
	Occurrence in 600 Clinical Cases—Per cent. 1910-1914	Occurrence in 126 cases post mortem 1896-1905	Occurrence in 356 Clinical Cases—Per cent. 1920-1922
Rheumatic	46	42	58
Syphilitic	12	13	7.5
Arteriosclerotic	15	19	7.5
Heart changes—Hypertension			5.4
Nephritic	19	21	
Congenital	0	1	5.4
Doubtful	8	4	
Miscellaneous			16

cidence of rheumatic fever and chorea parallels rheumatic heart disease in Massachusetts and Virginia.

Some may think that our study should indicate a higher percentage of syphilitic hearts. A higher incidence would have occurred, we believe, if all the patients from the Department of Syphilology had been studied. We purposely avoided the invasion of any one department for our material and accepted only the cases coming through and referred to the medical service.

Table IV summarizes two other etiological classifications of heart disease and has been included here for comparison.

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DISCUSSION.

DR. J. M. HUTCHESON, *Richmond*: This paper is very interesting, in that it gives a useful idea of the etiology of heart disease here with us. We have been depending too largely upon the statistics derived from places where conditions are different from ours. The incidence of rheumatic heart disease, for instance, varies in different climates, being higher in the north than with us. I wish I could state what our experience in Richmond has been, but I have not the exact figures at my command. We classify a larger percentage as luetic cases. We have more of these cases, because of our larger colored practice, who show a higher incidence of syphilis

than the white. When we get a positive Wassermann and the etiology of the heart disease is a little obscure we are apt to put the case down as luetic when often it is an arteriosclerotic heart with positive Wassermann.

We have been too easily satisfied with a diagnosis based on some anatomic defect, particularly of the valves, and too often content to recognize cardiac failure regardless of its cause. No diagnosis of cardiac disease is complete unless it includes a working idea of the origin of the trouble, the anatomic changes that have taken place with resulting functional derangement, whether or not the process is progressive and the manner in which it progresses. This means, of course, a careful consideration of etiology.

I believe there are many infections which we do not now think of as involving the heart, which really do, and these are responsible for cardiac failure more frequently than is thought. I recently saw two cases with undoubted evidence of structural involvement due to rather mild sinus infections. Any infection of the upper respiratory tract may cause cardiac damage. If we are to make any progress toward the prevention of cardiac disease it is necessary that we pay closer attention to its initial phases.

DR. T. D. JONES, *University*: I would like to add just a word further about the rheumatic group. Two cases I will cite. One, age thirty-nine, was admitted from our out-patient department with glycosuria. Her carbohydrate tolerance was almost normal. On routine examination, we found nothing other than a mild diabetes. A history of two attacks of rheumatic fever made us suspicious and we made an electrocardiogram, which showed a flat "T" wave in lead I and inverted "T" waves in leads II and III, the patient having had no digitalis. The patient came back in about a month with congestive heart failure. Another case was that of a girl seventeen years old. She had had rheumatic fever at five years and was apparently just recovering from an attack of rheumatic fever when admitted. A mid-diastolic murmur was heard over the apex of the heart by some and not by others. Electrocardiogram showed definite partial auriculo-ventricular block, not suspected clinically. The patient went out of the hospital with minute instructions as to method of living. I would like to impress upon everyone that in obtaining any routine history, we should get the facts as to whether there has been any chorea, tonsillitis or rheumatic fever and, if there has been, we should suspect rheumatic involvement of the heart.

DR. J. BOLLING JONES, *Petersburg*: In the rheumatic group we have had only five cases among members of the colored race. In the routine examination of applicants for the service in the first draft, comprising men from eighteen to twenty-one years of age, the examination of the teeth was stressed. Many men got out of the service because they did not have certain teeth. The poor negro did not get out at all for this reason, because a negro always has good teeth. It is a remarkable fact. We find in the mouth of practically every white man of this age a large percentage of defective teeth, but it is very rare to find any in the mouth of a colored man. Since we know that there is a definite connection between mouth infections, throat infections and heart disease, particularly in the rheumatic group, this probably explains why rheumatic hearts, as a rule, do not occur in members of the colored race. Probably this difference in the two races is explained, in so far as mouth and throat infections bear a relation to heart disease. Teeth decaying in early life are especially rare in the negroes, and they are thus protected from rheumatism.

DR. WM. R. JONES, *Richmond*: What Dr. Jones has just said brings up a question deserving future consideration in regard to the rheumatic heart. We have made a study of rheumatic heart disease and conditions causing it in order to clear up the obscurity surrounding it. In the negro race we have a large percentage of heart disease. We have just heard that negroes have a small percentage of bad teeth. Of course we know the relationship between bad teeth and rheumatism. Our experience in this matter is apparently contradictory. The white race with a small percentage of heart disease has a relatively larger per cent, due to infection. In the negro race we observed many people engaged in laborious occupations. These are very subject to heart disease. Gonorrhoea is often the cause of heart disease in this race, and of course cases of aortic disease are often syphilitic. It would be wise to study the subject in relation to specific rheumatism.

DR. J. EDWIN WOOD, *University*, closing discussion: The term "rheumatic" seems to be somewhat confusing. I should like to repeat the definition of rheumatic heart disease already read. A study of the pathology of rheumatic fever by Swift indicates that heart disease is only one important manifestation of this infection and that while the Aschoff body is a characteristic finding in the heart muscle, similar focal lesions may be found elsewhere in the body. We do not know certainly the agent causing rheumatic fever, but there is evidence to show that it may be a streptococcus infection.

I agree with Dr. Hutcheson that we do not clearly understand acute infectious disease as a cause of cardiac damage.

NECROPSIES AS AN INDEX OF EFFICIENCY OF TREATMENT.*

By LOUIS B. WILSON, M. D., Rochester, Minnesota.

The physician in his professional work is called on to diagnose and treat two types of human ailments: those which do not threaten the life of the patient, and those which do endanger his life. In the first type, the physician, in his efforts to relieve pain, to restore the patient to health more quickly, and to prevent the development of chronic diseases of vital organs which may in the end either permanently impair the health, or through exacerbations endanger life, may often be aided in his diagnosis, and not infrequently in his treatment of the case, by laboratory procedure. It is not my purpose here to discuss these phases but rather to take up those considerations pertaining to the improvement of the physician's judgment in diagnosis and treatment in the second type of ailments, namely, those in which the patient's life is endangered.

Every physician, when he graduates from medical school, is equipped with a fair general

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knowledge of the beginnings, progress, and termination of the important diseases of mankind. These are based on a working knowledge of the principles of anatomy, physiology, chemistry, and pathology. He has obtained his best working knowledge of anatomy in the dissection room, and of pathology, in the morgue, the museum, and the laboratory. He has his journals and his text-books by which he can extend his knowledge in all fields so far as is possible by reading. In most states, besides this scholastic equipment, he must also add a year of practical work in a hospital before he is permitted to practice medicine. During this year he has some experience in attempting to apply, with greater responsibility than during his undergraduate years, his knowledge of fundamental medical sciences to the diagnosis and treatment of disease. A large share of his attention must, however, be devoted to the art rather than to the science of medicine, that is, to ways of doing things rather than to the reasons for doing them. When he finally leaves the hospital and begins practice for himself, he is fairly well equipped for general practice in everything except the most important, namely, clinical judgment.

How shall we define clinical judgment? Everyone agrees that it rests on experience. But what are the elements of fruitful experience which result in improved judgment? Does it consist in reading the experience of other clinicians? Does it consist in listening to the clinical lectures of other clinicians? Or does it not consist almost entirely in learning from one's own experience? It is true there are rare individuals whose clinical judgment seems to be developed very early and after relatively little clinical experience. They have perhaps even unconsciously developed good judgment, as a puppy may learn to swim by being thrown into the water. Such rare persons pass among their fellows as geniuses with wonderful diagnostic intuition. The more one studies them, however, the more one is impressed with the fact that although their mental processes may be subconscious, they really are quick and careful observers of minute details which, unconsciously, they arrange in logical sequence to form the premises for their conclusions. Such geniuses are rare. The great bulk of us are compelled to improve our judgment, if at all, by conscious and painstaking effort. Fundamentally this conscious effort must be along the line of studying our errors.

Now, fortunately for us, and still more fortunately for our patients, the results of the great bulk of our errors do not immediately result in the death of the patient. Because of this, in many cases, we may never have the opportunity of analyzing our errors, unless in later years their results are brought to our notice either by our own renewed studies of the patient or, what is more unpleasant, by the not always friendly criticisms of some other practitioner to whom our patient has turned.

But in those instances in which we know or suspect that we have erred in diagnosis or treatment and the patient dies while still under our care, there is available the best opportunity in all our professional life for improving our judgment, namely, the opportunity to perform a necropsy and find out where and to what extent we have erred, if at all.

In the face of this line of reasoning, the logic of which will probably be admitted by everyone, why is it, that among so intelligent a body of physicians as the United States holds at present, necropsies are performed on the bodies of probably not more than 2 per cent of all the patients who die? In the first place, is it because of the great difficulty of obtaining permission for necropsies? In answer to this suggestion a few specific instances may be given. For the year 1920,[1] thirty-nine hospitals in Chicago reported to a special committee of the Institute of Medicine 12 per cent of permission necropsies from 4,868 deaths. In only six of these hospitals, the percentage of permission necropsies was above twenty. During the following year, 1921,[2] the same hospitals reported 16.5 per cent of permission necropsies and eighteen of the hospitals showed an increase in their percentage over 1920. In nine hospitals the percentage of permission necropsies was above twenty. This record seems to me to show what may be accomplished in a very large community by the increased interest produced by a central committee. Among efforts of single institutions the following may be mentioned:

The Philadelphia General Hospital in 1922[3] reported an increase in its permission necropsies in three years from 10 to 51.3 per cent.

Bluestone reported in 1922[4] that in Mount Sinai Hospital necropsies were performed in 56 per cent of all ward deaths, excluding coroner's cases, for the year 1921, and that during a six months' period, beginning March.

1921, permission was obtained in 64 per cent of the cases. This was in a hospital in which many of the patients are Jewish, a group who are notoriously averse to necropsies, and in which in 1913 the percentage of necropsies, exclusive of medico-legal cases, was 7.3 per cent.

In 1904, in the Mayo Clinic, the bodies of only 22 per cent of all patients dying were examined postmortem. This was the highest percentage which had been made from the opening of St. Mary's Hospital in 1889. In 1905, with the addition to the staff of a pathologist, a part of whose duty it was to secure permissions for necropsies, the bodies of 70 per cent of all patients dying were examined by permission. This percentage has never been materially lessened since 1905. It has gone in one year to almost 95 per cent. The usual annual percentage is about eighty-five. The total number of necropsies for 1923 was 592.

But high percentages of permissions for necropsies are not found in hospitals alone. Many physicians working alone obtain excellent percentages. One of the most remarkable instances of which I am aware is that of Dr. Hugh T. Montgomery,[5] of South Bend, Indiana. Nearly fifty years ago Dr. Montgomery began practice in an isolated rural community in Elkhart County, Indiana. He asked for permission for a necropsy of the body of his first patient to die, and was almost mobbed for his temerity. He says, "I did not get that postmortem, but I persisted and I got the third. They slowly became more and more frequent, until most of my families wanted to know and to see what had caused the death of their relative. Our Elkhart County Medical Society met once a month. I was always there, and with from three to five pathologic specimens. During the nine years that I spent in that village, far from a railroad, getting my mail every other day, I didn't stop growing in medicine. Any man can accomplish what I did, if he will be persistent, strictly honest, and sympathetic with the people with whom he is located."

It is the general consensus of opinion of pathologists whose duty it is to request permission for necropsies that almost all intelligent persons, with the possible exception of members of certain religious sects, can be brought to give consent for the examination of the bodies of their dead relatives by an honest and straight-forward presentation of the reasons why an examination should be made. It is true that there are many minor factors, such as the interference of uninformed undertakers, religious scruples, racial prejudices and so forth, which are cited as excuses for the general failure to obtain permission for necropsies. When all is said and done, however, the plain truth, in most instances, is that necropsies are not obtained by physicans because they are not sufficiently interested in them to urge permission.

Now, physicians as a class are both honest and earnest in their desire to render the best possible service to their patients. If necropsies can contribute to the improvement of such service, why are physicians not sufficiently interested to urge permission for them? I take it this lack of interest has a number of roots which, unconsciously to the physician, have placed him in a position from which he finds it difficult to extricate himself. One of these roots I have no doubt is public opinion. It's a brave man who will suddenly go contrary to public opinion in matters intimately connected with the dead, and in this country there is no doubt that there is a vague public opinion which is adverse to countenancing necropsies. Such opinion, however, I believe to be so groundless that it can be readily changed by honest, straight-forward presentation of the facts to intelligent persons. Too frequently, alas, the physician does not know how to present the case for necropsy permission. He is likely to ask, if at all, for permission as a favor to himself. This attitude seems to me to be radically wrong. There is no objection to stating that you as the physician of course are interested in finding out more of the facts concerning the dead. But it also should be made clear that the desire for this knowledge is not a matter of personal curiosity, but that you may first apply it in the diagnosis and treatment of diseases of other members of the family of the deceased, and also in the care of other sick persons. Of course, this presupposes the necessity for admitting that the attending physician does not know everything concerning the dead whom he has attended. But this admission of lack of omniscience can be made tactfully and, indeed, in such a way as to create a strong prejudice in favor of the physician instead of against him. Most of all, however, the fact should be emphasized that the friends of the dead ought to know, and have a right to know everything possible concerning the con-

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ditions of disease in their dead relatives. A resulting corollary of this is that the physician must truthfully and fully explain to the relatives after he has made the examination exactly what he has found In our work at Rochester we believe that this is one of the largest factors in our continuing high percentage of permissions for necropsy.

The pathologic departments of the medical schools of the United States are quite as well manned as are the departments of anatomy, physiology, and chemistry in the same schools. But in all the fundamental departments, the teaching personnel is very meager. Relatively few of the medical schools control sufficient hospital material to allow, even with the most careful cultivation of permissions, a large number of necropsies.* In some institutions the number of necropsies available for teaching purposes is further reduced by coroner's cases, the examinations of which are not open to students. A fourth factor is the lack of students' time in our present over-crowded standard medical curriculum. These four factors, namely, lack of teaching personnel, lack of hospital material, isolation of coroner's cases, and especially lack of time in the curriculum, operate in many medical schools to reduce the total number of necropsies observed by the undergraduate medical student to a ridiculous minimum, while the number of necropsies in which the medical student has had an opportunity to take part is even much less. As a result, the medical graduate is almost wholly untrained in necropsy work, and hence lacks confidence in attempting to perform a necropsy, or to interpret the findings thereof. But this condition should not deter the earnest young practitioner who desires to render better service to his patients. He may make absurd mistakes in his early necropsy experience, but he will learn by these. Of course he should embrace any opportunity to work as an assistant to a good general pathologist. If he is wise, he will spend his first vacation study period attending necropsies and clinical-pathologic conferences in some large hospital. Men competent to make necropsies of considerable excellence are really not so few as we sometimes imagine. In the A. E. F., although in May, 1918, we could find in the seventy-two hospitals then in France in which there were laboratories only twelve medical officers who would admit that they knew how to make a necropsy, we succeeded in finding before the armistice more than four hundred who could and did make good necropsies; that is, necropsies which, though in some cases not conducted in the most scientific manner, yet actually did yield information which was of very great importance to the other physicians and surgeons in the hospital organizations.

I suspect that the lack of interest in necropsies which obtains among physicians may in part be due also to the faith which many of them have come to place in the numerous and excellent physiologic and chemical tests which are now available for diagnosis while the patient is still alive. It might be supposed that the patient who has had all of the various laboratory examinations which are possible in a modern university or private clinic would have had the whole story of his ailments completely revealed to his physician. We are sometimes surprised that this is not the case, but we should not be so surprised. Very few tests are pathognomonic of anything, a fact which must always remain, so long as we are dealing with that complex organism, the human body. Rarely is any part alone sick. Rarely does any single lesion reveal itself unqualifiedly. Rarely is the immediate cause of death the only important part of a patient's ailments. The cocksure internist is the inexperienced internist, who is interested in making a diagnosis in a case regardless of the fact that many other essential or even more important things may ail the patient. It is difficult enough to get at the real facts of disease when the entire body may be made the subject of both gross and microscopic examination with the full clinical history of the patient and the results of all laboratory tests at hand to be used as a suggestive chart for discovery. How, then, can the clinician, who has only the clinical history, the tests, and the results of his relatively meager physical examination, expect to get at all the facts of disease? I cannot refrain from speaking a word of caution here concerning our overweening confidence in the results of the microscopic examination of tissue from the living patient. This can at best only give the information concerning the minute fractional part of the tissues of the patient which are possibly diseased, and such a part must be selected by gross appearance only. If the microscopic examination

*The Medical School of the University of Minnesota is particularly fortunate in this respect. In 1923 its Department of Pathology performed 849 postmortems. During the last six months of this year (1924), postmortems were made on 68 per cent of all patients dying in the University Hospital.6

of a biopsy specimen is positive, well and good; if negative, we are fortunate if we are not led into an unfounded confidence that disease is absent, which may result seriously to the patient by our failure to proceed with necessary remedial measures.

I think I hear someone ask, "But is not all this reasoning fallacious after all? Are we not, in our diagnosis and treatment of patients, rendering a very highly accurate and effective service? In other words, have not most of our clinicians, without the aid of necropsies actually developed such good clinical judgment that their percentage of accuracy in diagnosis is very high?" I regret to say that where necropsy records are complete, this is shown not to be the case. You are all familiar with the reports published a few years ago by Dr. Richard Cabot,[7] showing the distressingly large percentage of clinical errors made concerning 3,000 patients on whom necropsies were performed. Where a batting average of correct diagnoses is less than, or little more than 50 per cent, it might almost be considered guessing. Yet Cabot found such an error to exist concerning miliary tuberculosis, chronic interstitial nephritis, thoracic aneurysm, hepatic cirrhosis, acute endocarditis, peptic ulcer, suppurative nephritis, renal tuberculosis, bronchopneumonia, vertebral tuberculosis, chronic myocarditis, hepatic abscess, acute pericarditis, and acute nephritis. Wells[8] has recently analyzed 3,712 necropsies, 1,000 of which were from his own records, and 2,712 from the necropsy records of Cook County Hospital for the years 1917 to 1922, with special reference to cancer. He found a total diagnostic error of 36.5 per cent. Thirty-seven per cent of all internal tumors were not recognized. Wood,[9] pathologist to St. Luke's Hospital, New York, says, "Only the pathologist realizes how many patients with hysteria have brain tumors; in how many 'heart cases' there are no valvular lesions but nephritis, and that 10 per cent of all old persons die with unsuspected cancer." I think it may be asserted with modesty that the patients in the Mayo Clinic are as carefully and thoroughly studied as anywhere else in America, and yet more than half our necropsies show important lesions, though not necessarily the fundamental ones, which have not been mentioned in the clinical histories. Self-confidence in diagnosis comes from permitting the undertaker to cover errors. Is it any wonder that we talk of the efficient necropsy service as an index of efficiency of diagnosis and treatment?

I doubt very much whether any internist, however skilled, can maintain a high degree of efficiency with a low percentage of necropsies. In this connection I am reminded of an incident. Early in the spring of 1918 I had the pleasure of spending the week-end with Sir William Osler at Oxford. I had not seen him for years, and Saturday night we talked until Sunday morning. He dwelt in his own keen, analytical way particularly on certain types of conditions which had been brought out during the World War, and promised to go over with me the next morning a number of his most interesting cases of this kind in the hospital. But when we registered at the hospital the next morning, the clerk said, "Sir William, there is a postmortem on one of your cases." Osler turned to me and said, "That settles it, our D. A. H. cases must wait. I never miss a postmortem."

In hospitals or other clinical groups, the most effective utilization of the information from necropsies is by means of the clinico-pathologic conference. In the early days of the Mayo Clinic when the staff was small, these were held at irregular intervals as soon as possible after each necropsy. As the staff increased, and it became more difficult to get men together, we settled down to weekly conferences. Except for a short interval during the war, these have been continuous since 1912. They are the most conscientiously attended meetings of any we hold, and I believe it is the opinion of all the members of the staff that they are the most fruitful in suggestions for improvement, not even excepting our very excellent lecture courses by eminent specialists from outside our staff. We insist on these conferences weekly instead of at longer intervals, because we feel that each case should be fresh in the mind of every man concerned. The clinical history, the laboratory findings, and the necropsy report are reviewed in detail. Specimens, if any, both gross and microscopic, are demonstrated. It is a closed meeting, that we may speak with "the brutal frankness of blood relatives." Not infrequently someone's pride is hurt, but it heals without being destroyed. It is not humility alone that we attain. There is often cause for congratulation. Most of all we learn to face the truth, and are inspired thereby to an overwhelming desire to improve.

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Would that we might all have engraved in our hearts, if not in our meeting halls, the old motto, "*Mortui vivos docent.*"

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A BRIEF DISCUSSION OF DIGITALIS AND STRYCHNINE.*

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If a discussion of digitalis is to be limited to a few minutes, it is necessary to go rather fully into a few phases of the subject only, and to omit entirely or merely allude to certain other phases. The real difficulty lies in preparing a sufficiently brief discussion.

A full discussion would have to include:

1. The pharmacology.

2. A detailed enumeration of the official preparations and many of the non-official that are on the market, with a statement as to the relative value, including their cost.

3. An explanation of the methods of standardization.

4. A comparison of the methods of administration—by mouth, by rectum, in the veins or in the muscles—including the average time in which either method may be expected to show, first, any action; second, the maximum action; and the duration of this maximum effect.

5. The physiological action, whether on the heart muscle itself, the nervous system, the gastric mucosa, the blood vessels, other muscular tissues, etc.

6. The available evidence of such physiological action.

7. The indications for the use of digitalis and the contra-indications, and the advisable therapeutic combinations.

*Read before the Staff of the McGuire Clinic.

I. AND II. PHARMACOLOGY AND PREPARATIONS

Digitalis is grown in various parts of the world, one variety being about as good as another. A very good plant is grown near Richmond. The leaves or seeds are used by different manufacturing houses. Digitalis is very complex in composition, and from it several alkaloids or glucosides have been obtained, of which four might be mentioned: digitalin, digitalein, digitoxin and digitonin. It is marketed in the form of the leaves or seeds, a tincture, a fluid extract, an infusion and the alkaloids mentioned. The strength of digitalis varies enormously, and none of the official preparations can be used indiscriminately, that is without a physiological test having first been made. It would seem that the alkaloids or glucosides had a uniform strength, but this is not true, the French digitalin, for example, being eight times as powerful as the German digitalin, from which the American digitalin is generally made. This enormous variation in the potency of different digitalis leaves and seeds may be mentioned as an explanation of the unfavorable reports as to its action that have occurred from time to time. It is clear that the indiscriminate use of tinctures varying in strength to such an extent that a full ounce of one has the same strength as a dram of another must lead to confusion. There are numerous non-official or proprietary preparations on the market, the most common of which are digifolin and digipuratum (Ciba), digitan (Merck), digitol (Mulford), digalen (Roche), digilutin (Upshur Smith), digitalone and tincture digitalis No. 111 (Parke-Davis), and tincture d i g i t a l i s (Squibb, Parke-Davis, Upshur Smith, etc.).

III. METHODS OF STANDARDIZATION

The methods of standardization are (a) the frog lethal dose method; (b) the frog systolic stand-still method; (c) the guinea-pig lethal dose method; and (d) the intravenous cat method. Without going into these at all fully, the principle of them all is the same; that is to say, they are physiological standardization methods, and after a tincture or any other preparation is manufactured, it is determined how much of this preparation given intravenously under absolutely constant conditions

is needed in order to produce death, or systolic stand-still, in a given length of time. This method of standardization must be used to determine the strength of any preparation of digitalis before it is put on the market, and we are absolutely dependent on the integrity of the manufacturing concern and druggist from whom we obtain our digitalis, unless we test it ourselves.

IV. Methods of Administration

Digitalis is commonly used by mouth, by rectum, in the veins, or in the muscles. The occurrence of such a great variety of preparations and indeed the development of preparations for hypodermic use, whether in the veins or in the muscles, is due to a misapprehension as to the effect of the administration of digitalis by mouth on the gastric mucosa.

In order to prescribe digitalis intelligently we should consider the time that must elapse before any effect may be expected after a dose is given, the time that must elapse before the maximum effect of any single dose is to be expected, and the number of hours or days approximately that this maximum effect will last.

With a properly standardized preparation these effects of digitalis therapy are subject to variation only in a manner comparable to the inconstancy of all other things in which the idiosyncrasies and individual variations of human beings have to be taken into consideration.

The earliest activity that can be expected of any quantity is on an average two hours. The maximum activity of any quantity that can be expected is on an average six hours. The duration of maximum activity is on an average eight days.

The most notable advance that has been made in digitalis studies in the last few years consists in the demonstration that no matter how digitalis is given a certain amount is necessary before full digitalis action can be obtained. Eggleston proved that this consists of .15 of a cubic centimeter to each pound of body weight in the average human being; that is to say, a human being weighing 150 lbs. must take 22.5 c.c., approximately 5 drams, of the tincture standardized as described above, before full digitalis action occurs. The Eggleston method consists in giving half the whole quantity at one dose instead of small doses at repeated intervals. If you give 1 c.c., the equivalent of 16 minims, every six hours, a patient must take digitalis for five and a half days before the proper amount is given, and it is quite impossible ever to thoroughly digitalize a patient if the interval of dosage is as great as twelve hours and the amount administered is no greater than 1 c.c.

It is well at this point to call attention to the size of a drop of tincture of digitalis. We are accustomed to thinking of a cubic centimeter and 16 drops as the same amount. With the tincture of digitalis, as indeed with all alcoholic solutions, this is very far from being the case, the average variation being about two to one. There is a bottle of the tincture of digitalis downstairs in our drug room from which a cubic centimeter was taken and the number of drops measured by several different droppers and pipettes. With the droppers the number of drops per c.c. varied from 34 to 45. With the ordinary pipette held at an angle of about 45° the number was 40; held erect the number was 52; with a volumetric pipette the number held at an angle of 45° was 68, and held vertically the number was 81. It is seen, therefore, that if you are giving hypodermically one of the proprietary tinctures, such as digifolin, 1 c.c. at a dose, and you wish to give the same dose by mouth, it must vary from 34 to 81 drops, depending on the dropper or pipette with which it is dropped.

The decision as to whether we shall order digitalis by mouth or in some other way depends practically only on whether or not there is already an existing nausea. Digitalis given by mouth or by rectum may be expected to begin its action in two hours, and to attain its maximum action in from four to six hours. In the presence of already existing nausea the rectal method may be employed. In the presence of an emergency where the action of digitalis inside of two hours is desired, some other allied pharmaceutic should be employed, preferably strophanthin. During the past year the Council on Pharmacy and Chemistry of the American Medical Association appointed a Committee composed of Canby Robinson, Paul White, Cary Eggleston and Robert A. Hatcher, to prepare a report for publication, which would set forth concisely the limitations of digitalis therapy and the methods of obtaining digitalis effects. Their report appears in the *Journal A. M. A.*, of August 16, 1924, and their conclusions that cover this part of my paper are as follows:

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"The oral administration of digitalis in the form of the standardized powdered leaf, infusion or tincture meets every requirement of digitalis therapy, with the exception of those relatively infrequent cases in which immediate relief, that is, within two hours, is imperatively demanded, or when nausea or vomiting precludes the oral method. When the threatening condition of the patient demands immediate relief, and there is no contraindication for the use of digitalis bodies, strophanthin or crystallized ouabain should be injected intramuscularly or intravenously."

The use of ouabain or strophanthin is extremely dangerous in patients who have recently received digitalis or any of its substitutes. I, personally, am afraid of ouabain, and have never seen a condition in which strophanthin was indicated.

In spite of the eminence of the Committee referred to above, and the deference to which their report is entitled, it seems to me unwise to discard the hypodermic method of giving digitalis. There are entirely too many conditions in which both the oral and rectal avenues are closed at the same time. An already existing nausea is given as a contraindication to oral administration, but nothing is said of diarrhoea, nor indeed of the many local, anal or rectal conditions that may render the rectal method impossible. It seems wise, therefore, to be familiar with some preparation for hypodermic use, no matter how rarely we may need it. It is likely that the Ciba people are reliable and that digifolin is properly standardized. An ampoul of digifolin is equal in amount to 1 c.c. of the tincture of digitalis, or 1½ grains of the powder.

A simple method of prescribing digitalis reasonably accurately may be worked out as follows: With a patient weighing about 150 pounds it is going to take something over a tablespoonful of the tincture to get a maximum action. Two measured drams may be given as the initial dose, then one dram every six hours for four more doses, then discontinue, expecting to get full digitalis action in about forty-eight hours. This should last about eight days. If further treatment then becomes necessary the amount given should not be over 1 c.c., on account of the fact that the response of a partially digitalized heart can not be so easily foreseen.

The amount of each dose may, of course, be smaller provided it is understood that if the total amount given in eight days equals something over one tablespoonful you may expect to get the active effect of the whole amount at the same time. Failing to understand this fact led to the erroneous idea that digitalis had a cumulative action.

V. The Physiological Action

The question to be answered here is, what does digitalis actually do that justifies or necessitates its use? This divides itself into the effect of digitalis on the heart itself, and the effect on the circulation. The effect on the heart itself consists in, first, delaying the impulse to contract as it passes from the auricle to the ventricle, thereby prolonging diastole; and, second, an increase in the force of each ventricular contraction. In addition to this, the vagus centre in the medulla is depressed; also the smooth muscle fibres in the arterioles are stimulated. This last effect is so insignificant with any amount that may be administered to a human being that it cannot be taken into consideration in digitalis therapy. This is the reason that digitalis is useless in surgical shock. Shock is a vascular phenomenon, accompanied by a marked fall in pressure. In the presence of a normal resistance in the arterioles digitalis may raise the pressure by its action on the heart. With marked dilatation and relaxation of the arterioles no cardiac effect sufficient to raise pressure is possible.

As to vomiting and the belief that at one time prevailed that digitalis was a gastro-intestinal irritant, there is no evidence that this is true. It does produce vomiting, but this is a reflex effect, from the heart to the medulla, back to the stomach by the motor fibers of the vagus, and occurs only after a quantity large enough to produce digitalization has been given.

Vomiting may be used as a clinical guide during the administration of digitalis. If a quantity, properly given, sufficient to produce vomiting does not—we will say for example—correct an arrhythmia, then that particular arrhythmia cannot be corrected with digitalis, and there is no use resorting to some other method of administration.

It has been stated that digitalis increases peristalsis. This cannot be denied, but evidence to prove that it is true is wanting, and it is believed that if there is any such definite physiological action it is a reflex act just as

vomiting is. This does not in any way preclude the use of digitalis to prevent gas in abdominal operations. The positive effect of increasing pressure in the splanchnic vessels and promoting absorption of gas by the blood stream explains its beneficial effect.

Digitalis accomplishes positive results as a diuretic, but only by increasing the speed of the flow of blood through the kidney and raising the pressure in the glomerules. It is often desirable when preparing a patient to undergo a serious operation, or to withstand the depression of a serious illness, such as pneumonia, to support the heart and circulation and protect them against these emergency conditions. In the adequate preparation of the heart digitalis is indispensable.

VI. Evidence of Physiological Action

The available evidence of the physiological action of digitalis will not be gone into at all, but will be dismissed with a statement that the evidence is satisfactory and conclusive, and sufficiently simple to be reproduced in any physiological laboratory.

VII. Indications for Use of Digitalis, Contra-Indications and Advisable Therapeutic Combinations

Digitalis is indicated in all forms of heart disease and deficiencies in the circulation in which the myocardium is unable without assistance to do its work, with the exception of paroxysmal tachycardia and heart block. Auricular fibrillation or flutter can be corrected, and complete arrhythmias of rate and force of the ventricles can be restored to normal rate and rhythm. As Dieulafoy says, "The heart is a gallant organ," and a heart muscle enormously dilated by disease or exhaustion, especially by exhaustion, may be restored to normal size and function by rapid digitalization, and may continue to do excellent work for many years. Clinically, digitalis is indicated in cardiac dyspnoea, chest pain on exertion, edema, cyanosis, congestion of the lung bases, liver or kidneys, ascites and hydrothorax. The diuretic action is far more conspicuous in patients with edema, ascites and hydrothorax than in those in whom there is no abnormal accumulation of fluid. There is nothing more graphic in the field of medicine or surgery than converting a bed-ridden, dropsical, dependent invalid into an active vigorous self-supporting producer.

The only real contra-indication to digitalis is heart block. Here it is extremely dangerous —that is, in partial blocks. Under the discussion of the physiological action the property of digitalis to delay the impulse as it goes from the auricle to the ventricle was mentioned. This is itself a partial block, and in those cases in which a partial block already exists, converting them into a complete block may cause death. It has been said that digitalis was contra-indicated when the "ox-heart" of aortic regurgitation is failing. This is not true, but it is true that there is not much hope of accomplishing anything. No attempt will be made to go very fully into the advisable therapeutic combinations any further than to mention the importance of rest, venesection, diet, limited fluids in the presence of dilatations or dropsy, morphine, purgatives and the mercurials, squills, theobromin, or diuretin (which is the sodio-salicylate of theobromin), and the nitrites.

In regard to strychnine, we have searched the literature, both clinical and physiological, pretty carefully, and do not find evidence that strychnine in a dose that a human being can stand has any direct effect upon the heart or the circulation. The effect of strychnine is as follows: It stimulates the higher portions of the brain; it facilitates the intellectual processes; it renders the sense of hearing, smell and sight more acute, but its most characteristic effect to stimulate the motor and sensory elements of the spinal cord.

The administration of strychnine, or, better, a tincture of nux vomica, increases the appetite, aids digestion, augments peristalsis, and is of assistance in causing a sense of well-being. In those who have a good appetite, a good digestion, normal peristalsis, and who feel well, the circulation is better than in those of poor appetite, poor digestion, constipation, and who are of a depressed spirit. In this indirect way strychnine improves the circulation.

Summary

1. Digitalis is an instrument of unique value and precision in the treatment of diseases of the heart, and in disturbances of the circulation.

2. If digitalis is to be used in a quantity sufficient to have any very marked action in time or degree, a careful analysis should be made of cardiac disorders, and of the various

factors that may be contributing causes in disturbances of the circulation.

3. The method of choice for administration is by mouth.

4. A standardized tincture should be kept in stock in brown glass bottles containing one ounce, and the amount to be administered should be directed by measure and not by any number of drops.

5. A small number of suitable packages for hypodermic use, such as the digifolin ampoul, should be kept in stock.

SOME IMPRESSIONS REGARDING DISEASES OF THE THYROID GLAND.*

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In every case we examine for chronic illness, we should consider the thyroid gland as a possible cause of symptoms. All patients will be found to fall into one of three classes, either having normal secretion, under secretion, or over secretion of the gland. Fortunately, the majority of patients will not present symptoms of abnormal secretion, and disease of the thyroid can at once be eliminated. There are others in which the secretion is very obviously abnormal. A diagnosis of these can be made without difficulty. There are still borderline cases which require careful study if a proper diagnosis is to be made.

Let us briefly consider the secretion and function of the thyroid. According to Kendall and Plummer, the active agent of the secretion of the thyroid is thyroxin, and the results obtained by the clinical use of the compound proves that this is correct. The thyroid function is complex. First, it is necessary to normal life as it presides over metabolism. Second, it is closely connected with the other glands of internal secretion in the development and regulation of the nervous, circulatory and osseus systems.

Metabolism seems to be governed almost entirely by the thyroid and it is the estimate of the patient's basal metabolic rate that shows us very accurately the degree of thyroid function. Basal metabolism is the metabolism observed in patients while at complete rest eight to ten hours after food intake.

There are two general methods of estimating basal metabolism—direct and indirect calorimetry. The former is absolutely correct but is not practical for clinical use and is employed only in experimental work. The latter is based on oxygen consumption or carbon dioxide elimination. The oxygen consumption method is simple and, checked against direct calorimetry, is accurate enough for clinical work. There is another test of thyroid secretion known as the Kottman reaction, based on the photochemical reaction of silver in the blood serum, which bids fair to be very valuable. Upon these two tests in conjunction with clinical symptoms, we should be able to group our patients with suspected secretory disturbances of the thyroid. Examples of the two extremes of thyroid abnormality are cretinism and exophthalmic goitre. The former will be discussed under the general heading "Hypothryroidism," and the latter under the general heading "Goitre."

Hypothyroidism is an insufficient thyroid secretion, congenital in the cretin, spontaneous, or the result of surgery, X-ray or radium therapy in the adult. Cretinism and other pronounced cases of hypothyrodism are easily recognized, but there are lesser degrees of insufficiency which must be watched for, or cases will be daily missed by many of us. Patients who are fat or show a tendency to obesity, those with coarse hair, dry skin, diminished perspiration, those who suffer with physical weakness and have mental fatigue after slight exertion and who have abnormality of sexual function should be carefully studied to see whether their symptoms are not due to diminished thyroid secretion. In proven cases proper therapy produces brilliant results. One should, however, prove his case and regulate the dose of thyroid extract or thyroxin by basal metabolism.

Crotti in his work on the thyroid calls attention to what he has designated *small thyroid insufficiency*. The metabolic rate in these cases likely would be within the bounds of normal, and only carefully watched thyroid therapy would prove the correctness or error of the diagnosis. This is a phase of thyroid trouble to be thought of and a cause of disease to be reckoned with. Many and varied conditions could be discussed here. Retardation of the healing of fractures, amenorrhoea, certain forms of dermatosis, such as acne, herpes and psoriasis, gastro-intestinal disturbances, lack of appetite, constipation, various nervous phenomena and disordered metabolism in general are noted in this condition. This train of thought, however, carries us into the present-

*Read before the South Piedmont Medical Society at its 1924 Spring meeting in Lynchburg, Va.

day field of endocrinology and possibly the use of polyglandular therapy as prescribed by many physicians—a subject we should carefully approach and then only after more of the physiology of the various glands is known.

I now wish to discuss the thyroid diseases other than hypothyroidism and will do so under the general heading "Goitre," reminding you that by goitre we mean enlargement of the thyroid, and also that many of these patients have been hypothyroid cases at times, probably very many more of them than we would have at first suspected. Perhaps to no other disease can the term endemic be so appropriately applied as to goitre. It is a world-wide condition. Its prevalence and distribution in the United States and in our own territory interests us most.

The statistics of the Surgeon General's Office show that out of 2,500,000 men examined for military service in the recent World War, 20,000 had goitre. Of these 11,000 were rejected as unfit for service. The highest proportion came from the State of Washington—38.81 per thousand. The States along the Great Lake region showed the next greatest prevalence of goitre. West Virginia showed 12.41 and Virginia 7.37 per thousand. The average for the entire country was 7.47. The prevalence of goitre in the United States can be imagined if we remember that these figures are for men of military age and that goitre is largely a disease of women. While these figures are appalling, especially when we remember that in our own State most of the cases of goitres occur in the mountain section, yet they are small when compared with certain countries in South America and in Europe where, in certain places, the diseases occurs in 80 per cent of the school children. The goitre question then is an international one, and standardization of the prevention and cure of the disease interests medical men of all nations.

As a general working basis, we classify goitre as follows: 1. Adolescent; 2. Simple goitre; 3. Toxic adenoma; 4. True exophthalmic goitre, and 5. Malignant goitre. This classification is, of course, subject to many modifications, but as a working basis has served us well.

1. The adolescent type of goitre is that seen in girls about the beginning of puberty and usually disappearing in a few years after menstruation is well established. In a certain number of cases, however, the goitre persists and requires treatment in later years. I believe the enlargement in this type is due to a need of additional thyroid secretion at a developmental period, and that the swelling of the gland is an effort to supply the deficiency. Might we not consider this a form of hypothyroidism? A small percentage of these cases later show slight increase in their basal metbolism and are really mildly toxic after some months' duration.

2. Under the heading "Simple Goitre," we place the cystic, colloid, the hypertrophic glandular and the non-toxic adenoma. These are the ordinary simple goitres which are familiar to all of us. They do not cause toxic symptoms nor are they of the hyposecretion type. Many develop during puberty, pregnancy or the menopause, the time of a woman's life when an increase of iodine is needed, and the thyroid has enlarged to supply the deficiency. Others have appeared when there was a temporary iodine insufficiency at times other than those just mentioned. The simple adenoma are congenital. They are of various sizes, single or multiple, and are of the kind that may develop into the toxic type later in life. Patients with this type of goitre seek relief because of pressure symptoms or because of unsightly deformity or because their family physician has warned them of the possibility of it being an adenoma and becoming dangerous at some later period in life.

The toxic adenoma type and exophthalmic goitre have until lately been called exophthalmic goitre or hyperthyroidism and no attempt at differentiation has been made. Plummer first called attention to the difference in these two types of hyperfunction goitre, and this differentiation meets with the approval of many physicians, although there are some men interested in goitre work who do not agree with him. We feel that there is a distinction, and while the distinction is not always easy to make, a proper diagnosis and differentiation leads to more accurate prognosis and better curative procedures.

3. The toxic adenoma type of goitres are seen in patients usually in middle life or older who have had a goitre present for a number of years. At the Mayo Clinic the average time after the appearance of goitre before the development of toxic symptoms was sixteen years: in our cases at St. Luke's Hospital the average time was twenty and one-half years.

The symptoms of toxic adenomatous goitre

are nervousness, rapid heart, coarse muscular tremors, but no bulging of the eyes. Gastro-intestinal disturbances are not so frequently seen. There is a loss of weight and an increase in basal metabolism. A distinct goitre is present which is usually irregular in outline, and the presence of a tumor or tumors in the gland can frequently be diagnosed. These cases are not so acute in development, are more amenable to treatment and are cured more quickly and more permanently than the exophthalmic type. If iodine is given to a patient with simple adenoma in sufficient quantity, symptoms of toxic adenoma can be almost exactly reproduced. This, however, is not the case with true exophthalmic goitre. The disease cannot be re-produced by the use of iodine.

4. The exophthalmic type of goitre appears in young people, the average age being twenty-two years in our cases. It generally develops in patients who have had a small symmetrical goitre which has been present for only a short time, the average time in our cases being eleven months. The symptoms are tachycardia, fine muscular tremors, exophthalmos, increased basal metabolism, loss of weight, and frequently diarrhoea or other gastro-intestinal symptoms. This type of hyperthyroidism is, of course, amenable to treatment and entirely curable, but they do not recover with the same ease and rapidity, and I doubt if they are ever as stable people as the cured toxic adenomatous type.

The diagnosis of toxic goitre is not often overlooked by physicians who carefully study their cases. The mistake that is now being made is to call too many nervous patients with rapid heart action *goitre patients.* There seems to be an increasing number of cases who have what might be called "autonomic imbalance," "effort syndrome," or other symptoms of the neuro-circulatory system, who are sent in with a diagnosis of goiters. Some of these patients have a simple goitre, others an indefinite enlargement of the neck; hence a differentiation from true toxic goitre is not always easy. It is certainly very important that an accurate diagnosis should be made and that the thyroid of people be not destroyed, either by surgery or X-ray, unless they suffer from thyroid disease. I believe that basal metabolism studies, carefully and repeatedly made, combined with sufficient experience in observing goitre in patients, is the best way to differentiate them.

5. The last type, malignant goitre, is said to constitute 2 per cent of all goitres occurring after middle life. This percentage is higher than we have found, but cancer of the thyroid is not a rare condition. It metastasizes early, being especially likely to develop in the spine, and is as incurable as cancers seem in other vital regions of the body.

I have briefly outlined the different types of goitre in order to discuss the treatment of each separately. The treatment of goitre begins with its prevention. As previously stated, it is believed that there are periods in the life of an individual when an increase of iodine is needed, and one of these is during pregnancy. Pregant women living in regions where goitre is endemic, especially if they have goitre themselves, should be given small doses of thyroid extract or some iodide salt. The benefit may be two-fold; it may prevent goitre developing in the mother, it may prevent an existing goitre from enlarging or becoming toxic; and, finally, it may prevent the child from having congenital goitre. It often would be advisable for families in whom goitre is prevalent to change their environments by moving to another locality where in a few generations the disease would likely disappear. This is impracticable except for the well-to-do, and even then the desired result might not be accomplished because goitre is endemic in such a large region of the country.

The prophylactic treatment suggested by Marine has given good results. He advises the administration of sodium iodide in doses of two grains daily for ten days, this period of the treatment being given twice each year. He found in checking up school children and comparing the incidence of goitre in those who had been treated and those who had not been treated that there was marked difference in favor of the ones treated.

The proper treatment of a patient with goitre will depend on the type of goitre present. The treatment of the adolescent type is essentially medical. I have seen a number of young girls who have had their thyroid removed for slight enlargement in whose cases surgery was not necessary. The enlargement in an adolescent goitre is compensatory, due to the demands of puberty, and the proper administration of iodine will effect a cure in the majority of cases. Most of these cases get well if let alone. The few that do not get well can be treated surgically later in life if necessary.

Patients with simple or non-toxic goitre seek relief because of pressure symptoms or because of unsightly appearance of their necks or because they have been told by their doctor of the possibility of toxic symptoms developing later in life. The treatment of this type of goitre is both medical and surgical. Medical treatment is especially successful in the parenchymatous form of thyroid hyperplasia seen at the time of pregnancy and the menopause. A diffuse colloid degeneration, when the latter is not too far advanced, may respond to iodine. There is also a compensatory hypertrophy associated with the numerous forms of cystic and nodular goitres which must be regarded as an attempt of nature to compensate for the lost function of the degenerated portion of the gland. These also respond to treatment in so far as the hyperthyroid part of the gland is concerned. The cysts are not actually made smaller but the total diminution leads one to think this is the case. Medical treatment should be tried in the parenchymatous hyperplasias, and results may be expected in some of these forms of simple goitres. Medical treatment, however, has its limitations. Fifty per cent of this type of patients are not benefited or are only slightly improved, and there is about 75 per cent relapse in the improved cases. So, when we advise medical treatment, we must keep the patients under careful observation. I am convinced a good many simple cases will be converted into the toxic type by the indiscriminate use of iodine and thyroid therapy.

Simple goitres can be easily and safely cured by operation. Surgery often becomes imperative to relieve the pressure symptoms and is good prophylaxis in the adenomatous type to prevent the occurrence of toxic goitre later in life. In doing an operation for simple goitre it is important to know the location of the enlargement. Some goitres are substernal and are removed with much difficulty and danger. Know the type of goitre and remember when cysts are present there is also usually compensating hypertrophy of the normal part of the gland. In these cases, do not take out too much. Patients may have barely secretion enough to supply their needs and your scalpel may convert them into a state of hypothyroidism.

The treatment of the two types of goitre causing hyperthyroidism is the greatest problem of thyroid disease, and there has been and still is much diversity of opinion on the subject. The only class of medical people whose opinion is unanimous is a group of surgeons who by long and patient work are able to report a large series of cases operated on with low mortality and high percentage of cures. Personally, I consider all toxic goitres surgical. Some cases get well under medical treatment, some are improved by use of X-ray or radium therapy, but the results secured by operation are so gratifying that I believe surgery is the method of choice in handling these patients.

Each toxic case of goitre must be studied individually to ascertain, first, if it is a toxic adenoma or true exophthalmic goitre; second, just how sick the patient is and how much surgery he can stand; and, third, what procedures are necessary to make the operation safe. The plan we follow in all types of toxic goitre is as follows:

The patient is confined to bed. A complete history is taken and routine physical examination made, especial attention being paid to teeth and upper respiratory tract. Basal metabolic tests are made at regular intervals. Blood examination, including Wassermann, urinalysis and such other laboratory tests as seem indicated, are ordered. Temperature and pulse rate are recorded every four hours. After a few days' observation of the patient, if we are convinced the case has only a mild or moderate degree of thyroid toxicosis, a partial thyroidectomy is done in the operating room under ether anesthesia. The operation in toxic cases consists in removing the greater part of both lobes and the isthmus of the thyroid, leaving a strip of thyroid gland attached to the posterior capsule on both sides. Gentleness and rapidity of operation add much to the patient's chance of recovery.

If, in studying a toxic case, it is found that the patient is markedly toxic, additional precautions are necessary. These are the cases that give us most concern and the ones in which the surgeon must divide the operation into several stages, doing only so much as the patient's condition will permit. In severe toxic goitre the procedure is as follows: Rest in bed until the patient is in good condition or until it is demonstrated that further rest will not be of benefit. The heart and circulation are carefully studied. Repeated basal metabolic tests are made to ascertain, if possible, whether the patient is on the ascent or descent of the disease. It is much better to operate

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upon a patient with a high metabolic rate who is getting better than on one with a moderate rate who is getting worse. Icebags and digitalis are used and, if the case is a true exophthalmic one, iodine in the form of Lugol's solution is given three times daily according to the method of Plummer. The actual way in which iodine benefits these cases is not definitely understood. It is a fact, however, that it does bring down the pulse rate and reduces the metabolism of these patients and makes them in better condition to stand the operation.

Wilson intimated in a recent article that the secretion of the thyroid in a true exophthalmic case does not contain normal thyroxin but an imperfect or incomplete form of thyroxin which is likely highly toxic. There is difficulty in the manufacture of synethetic thyroxin because the iodoxyl radical is hard to combine. This may also be true in the secretion of the thyroid in exophthalmic cases. It is possible that the administration of iodine may convert the exophthalmic case into the toxic adenoma type. Lugol's solution must be used carefully in these cases, as it has not been tried out over a long period of time, and we do not know what its ultimate effect will be. In a personal communication from Dr. Plummer, he states that a paper is about to be published on the use of Lugol, the appearance of which will be eagerly awaited.

In some of the severe cases of exophthalmic goitre, patients are nervous and apprehensive in regard to an operation; others look forward to an operation as a means of cure and are anxious to have it over. If patients dread the operation, the plan of "stealing the gland," suggested by Crile, is often employed. The patients are told that an inhalation treatment will be given them to prepare them for operation. Every day at a fixed hour a hypodermic of sterile water is injected and then they are given enough nitrous oxide gas to produce unconsciousness. They get so they look forward to the treatment and often enjoy it. When the day for the operation arrives at the accustomed hour they are given a hypodermic of morphia, put to sleep with gas, and transported to the operating room without knowledge that the hour of the dreaded ordeal has arrived. There are some cases who are too ill to permit being moved from their rooms or taking a general anesthetic, and these patients are operated on in their beds under local anesthesia.

In the severe cases, we remove the major portion of the gland, for we believe the increased activity of the portion left in is often responsible for acute post-operative reaction. Many of the wounds are not sutured, but are left open for drainage and packed with flavine gauze. Closure is effected twenty-four or forty-eight hours later under local anesthesia. We have not done many ligation operations for toxic goitre, although many excellent men advocate their use. The practice advised is to tie first one superior thyroid and later the other, and then remove a part of one or both lobes of the gland according to the condition of the patient, and still later close the wound. Patients thus treated have four or five operations before the work is completed. By dividing the operation into stages, the patient is able to withstand an amount of traumatism which would prove fatal if done at one time.

Patients of the severe exophthalmic type are dangerous risks unless you put them to bed and keep them under treatment long enough to regulate the heart action, promote nutrition and stabilize the nervous system. The management of these cases, the decision of when and when not to operate, and the judgment necessary to determine how much or how little to do, imposes a terrible responsibility on the surgeon. This should not be the case, because the problems would not arise if a diagnosis had been made earlier or the case referred to the surgeon sooner. The longer we wait before an operation, the higher the mortality climbs. All of these bad cases have been under someone's treatment while they are getting worse, and they would have been very safe cases if operation had been performed earlier. The time to remove the gland is the time the diagnosis is made while the heart and nervous system are intact.

The treatment of goitre, especially the toxic goitre, should not end with the operation nor when the patient is dismissed from the hospital. These cases should be under careful and intelligent medical care for six months to one year, or longer if necessary. Rest and quiet should be advised, excitement avoided, diet regulated and the patient put under the best possible hygienic conditions. The results of surgery are indeed brilliant, yet all cases that survive operation are not cured. There is still a percentage of those who are only improved and a small percentage who are unimproved. These cases are limited to the exophthalmic type.

The usual causes of failure are delayed operation, too much or too little gland removed, and neglected post-operative treatment. In some cases failure is unexplainable, the original cause of the disease being wrapped up with the sympathetic nervous system and other glands of internal secretion and not satisfactorily understood.

I would like in conclusion to emphasize the following:

1. Early diagnosis and proper classification of all types of goitre should be made.

2. Never operate upon adolescent goitre until time shows that the goitre is permanent and medical treatment has failed.

3. Non-toxic adenomata should be removed to relieve pressure symptoms and prevent conversion into the toxic type.

4. Individualization of each toxic case, early diagnosis and careful preliminary treatment, and sound surgical judgment in carrying out operative procedures are essential.

REMARKS ON THE FEEDING OF INFANTS AND YOUNG CHILDREN.*

By I. P. BATTLE, M. D., Rocky Mount, N. C.

When we consider to what extent pediatrics as a distinct entity in modern medicine is dependent upon nutrition in early life, it is surprising to find how comparatively recent it is that artificial feeding of infants was placed on a scientific basis.

In Condie's book on Diseases of Children, a book of 750 pages published in 1858, the subject is dismissed in five pages. He gives the mortality rate for England of babies "brought up by hand" as varying from forty per cent to ninety per cent, and advises as the best method of infant feeding, cow's milk "diluted with nearly an equal quantity of warm water and well sweetened with the best loaf sugar."

In Tanner's book of 1866 less than two pages are devoted to the subject. His only formula is milk diluted with one-third water or barley water slightly sweetened. He advises, where expense is no consideration, to give, instead, asses' or mares' milk.

The Germans even at that early date were experimenting with fixed substitutes for mother's milk: that is, a food that would do for all babies. They have never been able to entirely get away from this idea.

In 1869 Phillipp Biedert called attention to the difference in the casein of cow's milk and mother's milk. His work marked an important step toward scientific infant feed. Biedert, however, advocated a definite formula to make cow's milk conform to a diluted mother's milk.

In 1882 John F. Meigs, working with his son, Arthur V. Meigs, announced that mother's milk rarely contained more than one per cent casein. This was about one-half the figure at which Biedert had placed it.

Throughout the seventies and eighties but little general progress was made, each man of prominence recommending some special formula as the best for feeding normal infants.

To Thomas Morgan Rotch, perhaps more than any other, we owe the placing of infant feeding on a scientific basis. Graduating from Harvard in 1874, he was made its first professor of pediatrics in 1888. In 1891 he founded the first milk laboratory, the Walker-Gordon in Boston.

The first edition of his text-book was published in 1896. The second edition, although now twenty-three years old, contains a clear and thoughtful presentation of the subject of infant feeding, and a physician of the present day would be on safe ground in accepting it as his guide.

During the past twenty years not much has been added that is helpful in the feeding of the normal infant. Hobbies come and go. The manufacturer puts out new proprietaries or changes old. Special methods to meet certain conditions are advocated, but the one essential in the artificial feeding of infants is still clean cow's milk.

On the other hand, the studies of recent years have served to give us a conception of the cause of phenomena observed years ago. Thus, the vitamines, although unknown chemically, are fairly well understood in their relation to life. I might mention, also, the more recent studies of the elements calcium and phosphorus, particularly in their relation to rickets.

My interest in infant feeding is born of the responsibility that anyone doing general practice assumes. We can not all be specialists, nor is it fitting that we should be. By far the larger number of artificially fed infants must be cared for by the man in general practice and not by the specialist. Therefore, we should all at least know the food requirements of healthy infants. It should be the aim of the general practitioner to prevent as far as possible the difficult feeding cases by starting the infant on

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the right food. He should encourage by every means possible the production in his community of the highest grade milk. Perhaps very few if any of the cities in our State could justify the commercial existence of a milk laboratory, but there is no reason why the milk supply of even a small town should not conform to the requirements of certified milk.

It is not my intention to attempt any discussion of the various methods used in the feeding of normal and abnormal infants. It does seem, however, that, given a healthy infant of two or three months of age, doctors, as well as mothers, often go far out of the way to find a substitute for mother's milk when the gravity cream and skimmed milk mixture gives all the elements necessary for the infant's development and admits of all manner of variations in these elements to meet special indications.

If we exclude the preserved milks and those foods which are intended to be used in the modification of fresh cow's milk, the world would probably be none the worse if the proprietary infant foods were discontinued, and I would hazard a guess that anyone of the larger factories could, without increasing its capacity, produce a sufficient quantity of all the preparations used in milk modification to meet the legitimate needs in infant feeding.

If I should be asked to name the chief reasons for the failures in infant feeding in general practice, I would give them in the following order; (1) discouragement of the doctor on account of the ignorance of the mother, particularly that profound type of ignorance that is unaware of itself; (2) fear on the part of the doctor of percentages or simple arithmetic; (3) false pride on the part of the physician.

When a doctor is giving feeding formulae once every few weeks instead of daily, it is no disgrace not to be able to carry the figures always in his mind and the following day is plenty of time to begin the feeding which in his judgment best suits the needs of the infant. Most mothers seem to appreciate carefully written directions. In this connection I wish to state that I know of no work that has been as helpful to me as Dr. Hill's book, "Practical Infant Feeding."

With orange juice and occasionally cod liver oil, some modification of fresh cow's milk will suffice to carry the infant to the end of the first year at which time most infants can take whole cow's milk.

I do not believe we are ever justified in taking the risk of not boiling the baby's milk during the hot months in our climate. The cleanest of milk, when hauled about for two hours on a delivery wagon during a hot summer morning, may be a very unclean food for the baby.

Feeding the baby during the second year is as much of a problem as the care of the infant during the first year, yet we are called on much less often to assume this responsibility and, when the task is left to our decision, we are probably much more negligent than we are in the care of the young infant.

How often is the doctor asked the question, "My baby is a year old now, what may I give him to eat?" as if some very radical change should immediately take place?

It is generally conceded that milk should be the chief source of food throughout this year. There is a tendency on the part of babies that have been taking the bottle a long time to refuse milk once they begin to take a variety of foods. For this reason, as well as for the risk that might be incurred, it seems wise to let the changes in diet come about very gradually.

The plan as outlined by Dr. Hill for the healthy infant is to begin about the eighth or or ninth month on the simple starches. From the ninth to the fourteenth month the diet consists of milk, cereals, zwieback, soup or beef juice and orange juice. Strained green vegetables are added after the fourteenth month, potato and eggs after the sixteenth month and meats at the end of the second year.

The rather radical plan of early variation of the diet particularly the early feeding of green vegetables should be left to the specialist who is supposed to see his patient oftener than we do.

The whole question of infant feeding is individualistic. It is an interesting branch of our profession and can be either most discouraging or most gratifying to the doctor.

I think no one dislikes more than I the ancient and often repeated cant that doctors follow their profession solely for the great good they do suffering humanity. Most of us become doctors in ignorance of what we are doing. Quite a number remain doctors because of ignorance of other professions or of the trades that yield a livelihood. Yet there are times in the professional lives of all of us when we experience the highest type of pleasure, a pleasure that is cheapened by praise, the plea-

sure that is given by the consciousness of a good deed well done.

Such a feeling one experiences when he has been the means of guiding back to health and happiness a tiny bit of wailing and fretting humanity. May I quote you a word picture that paints at the same time the despair, the hope, the pleasure, and the joy that often times comes to the doctor in this part of his work? In 1865 Dr. West, an English physician wrote:

"The infant whose mother refuses to perform toward it a mother's part, or who, by accident, disease, or death, is deprived of the food that nature destined for it, too often languishes and dies. Such children you may see with no fat to give plumpness to their limbs, no red particles in their blood to impart a healthy hue to their skin, their faces wearing in infancy the lineaments of age, their voice a constant wail, their whole aspect an embodiment of woe. But give to such children the food that nature destined for them, and if the remedy does not come too late to save them, the mournful cry will cease, the face will assume a look of content, by degrees the features of infancy will disclose themselves, the limbs will grow round, the skin pure, red and white, and when at length, we hear the merry laugh of baby-hood it seems almost as if the little sufferer of some weeks before must have been a changeling, and this the real child brought back from fairy-land."

THE MANAGEMENT OF THE ACUTE HEART.*

By F. C. RINKER, M. D., Norfolk Va.

When we consult vital statistics, hospital and clinic records, we find ample reason for a discussion of the various methods used in the care and treatment of acute heart conditions which are occurring with ever increasing morbidity and mortality.

Of the 3,764,000 men who stood medical examination for service in the World War, 550,000 were rejected on account of effects of heart affections.

Schmidt reports cardiac abnormalities resulting from acute infections in 1,373 cases of school children in Detroit out of 148,000 examined.

Estimated from the examinations of New York City's school children, Halsey reports that there are about 200,000 school children in the United States who have evidence of "heart-disease."

From the examinations of life insurance records, it has been shown that more persons die from heart disease under twenty-five years of age than from typhoid fever; between the ages of twenty-five and thirty-four as many die from pneumonia, and after forty-five years of age more deaths are recorded from heart disease than from any other disease.

According to several reports, 10 per cent of the capacity of general hospitals is being occupied by cases of heart disease and 20 per cent of the ambulatory cases of medical clinics belong to the cardiovascular group.

A glance at these figures is in itself sufficient to spur us on to greater effort in the management as well as the prevention of heart-disease.

Someone has well said, "Given a thousand years to make a man and he would not be infection free." From infections, local and general, the heart probably suffers more than any other organ in the body.

This discussion is to be devoted to the acute heart only. For convenience let us divide those conditions which occur in the heart as acute disease into: 1. Acute endocarditis; 2. Acute myocardial derangement as a result of infections and contagious diseases.

First Group—Acute endocarditis is an acute inflammation of the endocardium resulting from infectious diseases, such as scarlet fever, acute rheumatic fever, acute tonsillitis, etc., resulting in destructive vegetations of the valves of the heart and marked constitutional symptoms.

The treatment of such a condition must be directed against two factors:

1. Local infection in the heart, and its effect on the circulation.

2. The remote infection of origin which has caused the cardiac disturbance.

The patient should be kept at absolute rest under the supervision of a nurse, when practicable, the diet should be light and nourishing, and, if there is edema, liquid food should be limited, the intestinal tract should be kept acting freely but not purged in the majority of cases, the skin (being one of the main avenues of elimination) should be kept clean, warm, and as active as possible. Water may be given freely unless there is edema or deficiency in urinary output (or it is well to regulate the intake of fluids with the daily output of urine). The mouth and throat should be

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kept cleansed and when there is local infection in either, means should be directed toward its eradication. All foci of infection should be removed at a safe time.

Many drugs have been advocated as useful in the treatment of acute heart affections. I will attempt to deal with the more important and useful ones.

1. Digitalis: Whenever there are evidences of cardiac weakness or disease, and, in some instances, prior to this warning (as in pneumonia), digitalis should be begun either by mouth, by hypodermic, or by rectum. The heart should be digitalized and kept under the influence of digitalis until the danger period is past.

2. Following the recent work of Young and others, I advise the intravenous use of mercurochrome in the bacillary and streptococcic infections, and gentian violet in coccal infections, provided the type of infection is determined by positive blood culture. This method of treatment has not, however, proven very satisfactory in the malignant cases of endocarditis.

3. Salicylate of soda is advised in all cases during the infectious stage; it may be given by mouth, by vein or by rectum.

4. Iron and arsenic may be used in those cases having anemia.

5. Morphia. The patient should not be allowed to suffer pain on account of the effect of suffering on the circulation. Morphine is by far the most valuable drug to be used for the relief of this symptom. Precordial pain may be also relieved by ice bag or mustard plaster locally.

The convalescence of these patients should be carried over a longer period of time than that of other diseases. When the patient is allowed to sit up and finally get up, his cardiac reaction to change in posture and to exertion should be watched very carefully. After being allowed up and about, it is wise to warn these patients regarding exertion and fatigue, advising them as to the necessity of reporting such symptoms as dyspnea, headache and digestive disturbances.

Second Group.—Acute myocardial changes may and frequently do occur in association with infectious diseases or any localized infections of severe degree. In cases of pneumonia, typhoid fever, scarlet fever, peritonitis, carbuncles, etc., the heart should be watched carefully and, in my opinion, digitalis should be started early in order to safeguard the myocardium before the damage is done. This is particularly true in cases of pneumonia, where cardiac efficiency is all important.

To conclude, let us remember that acute heart diseases do not mean only the detecting of cardiac murmurs signifying endocardial lesions, but that the efficiency of and conservation of the heart muscle strength is most important in the treatment of all infections which may and do affect the cardiovascular system.

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THE MANAGEMENT OF THE CHRONIC CARDIAC.*

By C. LYDON HARRELL, M. D., Norfolk, Va.

In speaking of the chronic cardiac we naturally think of two classes of cases: First, those who are living a natural life, performing their every day duties and are symptom free, so far as the heart is concerned. Second, those who have symptoms of heart failure, and seek treatment.

Under the first class, we have the chronic valvular diseases, early hypertensive cases, extra systoles or drop beats, low grade myocarditis in people of middle life, and sometimes a tobacco heart. The heart in these cases under normal conditions is compensating or doing its work without showing any reaction, but if put to a sudden strain, or if an unusual load be put on the myocardium, you get a reaction in the form of a rapid pulse, shortness of breath, occasionally pain over the heart and a heart murmur, or an increase in intensity if the murmur previously existed.

These patients are not sick; but are potentially sick. They need no treatment, but need to be taught how to live so as to keep themselves physically fit. First of all, if the patient be obese he should reduce to, or just below the normal weight for his height and age; he should try to maintain this weight forever afterward. This can be done only by diet and light physical exercise, preferably in the open. They should cut out tea and coffee, tobacco, alcoholic stimulants, condiments and highly seasoned foods. They should eat moderately, and never overload the stomach. The main meal should be taken in the middle of the day. All foci of infection should be removed, such as teeth and tonsils, and constantly be on the lookout for others. These people, who have the habit of forming pus, have a peculiar

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faculty of keeping it up. You cannot repair damage already done, but you can prevent further damage by promptly getting rid of your source of infection. The patients with potential heart disease should have plenty of sleep and recreation, avoid doing anything in a hurry or putting an unnecessary strain on the heart. These cases should take a vacation once or twice a year, either to the seashore or in the mountains, get themselves away from home cares and business worries.

The instructions given to these cases should be given in such a way as not to call undue attention to the heart. In many cases of a neurotic tendency, we do harm by saying that they have heart disease or high blood pressure. You will make invalids of some rather than cure them. It is best in such cases to tell the real facts to some member of the family.

Under the second class, we have the cases who present themselves for treatment with symptoms of heart failure, as shortness of breath, indigestion, palpitation, cough, a tired feeling, pain in the region of the heart or inability to exert themselves. These cases may be classified according to the degree of failure of the heart muscle. I will speak of them briefly under the following heads:

1. Chronic myocarditis or valvular disease with failing compensation.
2. Acute, or sudden cardiac failure.
3. Chronic myocarditis with marked edema or anasarca.
4. Chronic syphilitic aortitis.
5. Chronic cardiac hypertrophy, secondary to hypertension.
6. Angina pectoris.

The cases of *Chronic Myocarditis with Failing Compensation* usually present themselves with the following symptoms: Indigestion, shortness of breath, palpitation of the heart, and cough, usually made worse on exertion. We should try as nearly as possible to determine the pathology in these cases, a careful history as to what a patient can do without symptoms, a careful physical examination before and after exercise. There are different calesthenics that you can put the patient through which according to the reaction will help to determine the extent of injury in the myocardium. Sometimes a vital capacity will give valuable information as to the amount of endurance the patient has, more especially if we know his normal. In cases where there is any irregularity in the pulse rate or contraction of the heart, an electrocardiographic study will help us a good deal in determining the form of irregularity, the extent of damage to the myocardia, and which side of the heart is really at fault. The diagnosis made, we should then outline our treatment. The patient should be put to bed, at absolute rest in as comfortable position as possible; this is usually propped up on pillows, or a bed rest at an angle of about forty-five degrees. We must be sure to give the patient plenty of rest the first few nights. I prefer a hypodermic of morphia, with ammonium bromide grs. 15, and morphia gr. 1/16 by mouth during the day. I believe that sleep and a quiet nervous system are very essential in treating any cardiac case. The fluids should be limited to 1,500 c.c. in twenty-four hours, checking the urine to see that the intake does not exceed the output. A salt free semi-fluid diet is advised. I give fifteen to twenty minims of digitol three times a day. The patient should be kept in bed several days after the pulse is normal and he is symptom free, and then let up and made to begin exercise very gradually.

I wish to make a few remarks concerning the use of digitalis. I believe that it is a very much misused and abused drug. Whichever preparation you use, be sure to select one that is potent, and one that you are familiar with, and stick to it. No two preparations of digitalis have the same strength; all of them lose their strength when exposed to the air, whether it be the leaves or the liquid. Dr. Christian once told me he preferred the freshly powdered leaves to any other. He always ordered his digitalis from the same supply house and tested each shipment before it was dispensed from the drug store. The writer uses either the tincture or powdered leaves, but prefers the tincture for general work, for it is much easier to regulate the dose. I am opposed to prescribing it promiscuously; use it when it is indicated and leave it alone when it is not.

There is a tendency now on the part of many internists to give very large doses of digitalis either at one dose or within the first twenty-four hours, their object being to get the patient thoroughly digitalized, and then discontinue the drug. Eggleston's method is to give one c.c. of the purified tincture or .01 gram of the dry leaf to every ten pounds of body weight, so a patient weighing 150 pounds would get 15 c.c. or ½ ounce of the tincture, or 15 grains of the dried leaf.

Pardee has shown that the body disposes

daily on an average of twenty-two minims of the purified tincture of standard potency. In his experiments the lowest was ten minims and the highest forty; therefore, it is necessary when the administration of the drug is continued over several days and you wish to thoroughly, digitalize the patient to add this amount to the approximated dose. We also learn from this that digitalis has an accumulative effect, an argument against continuing it indefinitely.

Digitalis may be administered by mouth, per rectum, or hypodermatically. There is practically no advantage in giving it hypodermatically except in cases of digestive disturbance. It takes approximately two hours to show its effect on the heart muscle when administered either way. It is absorbed from both the stomach and rectum, and shows its effects in about the same length of time.

Personally, I see no advantage in the large heroic doses; there are many disadvantages. We cannot be with our patients all the time, and it acts as a poison in some instances. Luten has shown that when successive fractions of the lethal dose of the tincture of digitalis are injected intravenously into cats, auriculo-ventricular dissociation takes place after about 80 per cent of the lethal dose has been administered. This is brought about by ventricular acceleration. He has also proven this clinically in numerous cases, one of which I will mention. The patient showed a normal mechanism before the administration of digitalis; ventricular tachycardia developed in twenty-two and one-half hours after the last dose. The patient received 16 c.c. or ½ ounce of the tincture in sixteen hours. Before digitalis the rate was 96; after digitalis the rate of the auricles was 170 and ventricles 145,—thus proving that a large dose of the drug may cause a dissociation of auricles and ventricles and produce a tachycardia. Often a toxic dose by reflex symptoms will produce nausea and prevent the taking of food.

Acute Heart Failure, With orWith Auricular Fibrillation.—These cases are usually extremely sick and demand prompt treatment, or the worst may be expected. They should be immediately placed in a comfortable recumbent position. Remove all tight clothing without any exertion on the part of the patient. They should be given plenty of fresh air; it is best for the breeze to blow directly on the face; avoid crowding in the room or anything that would tend to excite the patient. Give a dram of aromatic spirits of ammonia by mouth, a hypodermic of ¼ gr. of morphine combined with strychnine or atropine. If there is pain over the heart, apply an icebag, and hot water bottles over the body. If the patient appears to be very much cyanosed or the veins in the neck engorged, venesection is indicated, removing 8 to 10 ounces of blood to help relieve the right heart. After the emergency measures have been done, we should then start giving digitalis, one c.c. hypodermatically every four hours. Some recommend giving caffein or camphor. The writer has but little faith in their value, neither has MacKenzie nor other writers with whom I consulted. These cases should be kept extremely quiet for several hours with no exertion; sleep is what they must have. The food should be restricted to warm stimulating drinks. After the acute stage is over, they should be handled as any other case of myocarditis with failing compensation.

Among the cases of chronic myocarditis, we usually get the various forms of irregularity of the heart, the most common of which is auricular fibrillation. Most of these irregularities usually disappear with rest in bed and digitalis, but some few do not. In such cases, we resort to the use of quinidine sulphate, grs. 5 three times a day being usually sufficient. The patient must be kept in bed while on the drug, and it should not be administered until three or four days after digitalis has been discontinued.

In October, 1921, a white man, age sixty-three, was referred to me for treatment, with all the symptoms of a failing compensation, including edema of the ankles, passive congestion of the liver and a very irregular pulse. He was put to bed and given digitalis. In three weeks he was symptom-free and able to return to his home in the country under the care of his physician. In May, 1923, he reported again, but was in much worse shape than on his previous visit. In about three weeks his symptoms cleared up but his arrythmia did not, and, on exercise, his symptoms reappeared, cough, dyspnea, etc. He was put back to bed and digitalis discontinued. On May 17th, he was given quinidine sulphate, grs. 5 night and morning. On the 19th, he was feeling much better, with a pulse rate of 80, and missing only one or two beats per minute. On the 21st, his pulse rate was 76 and regular, but he was coughing up some

bloody mucus. His systolic blood pressure was 98, diastolic could not be read, consequently, he had no discoverable pulse pressure. The quinidine was reduced to 5 grs. per day and continued for some time. You will see from this that the quinidine lowered the pulse rate and improved the rhythm, but had no beneficial effect on the heart muscle. However, in a few days he was feeling much better and prevailed on me to let him go home, which I did, against my judgment. He went home on a cot and I wrote his physician what had been done. What the patient did I do not know except that he died in about two weeks. This shows the importance of keeping them quiet and under observation while taking quinidine.

Chronic Myocarditis With Marked Edema or Anasarca.—These cases as a rule are very uncomfortable, besides being very ill. The pulse is usually very rapid and often irregular. They are unable to lie down on account of dyspnea; consequently, they are first up and then down, first in bed then out of bed. All the serous cavities are filled with fluid, tissues waterlogged, kidneys almost inactive, mucous membrane of the digestive tract is usually edematous, and, as a result they are unable to care for food,—the effect of failing myocardium. They should be put to bed for an indefinite time, and insist on their staying in bed, propped up on a bed rest until they are able to lie down. The best results can be obtained in a hospital. They should be given a hypodermic of morphia ¼ gr. at bedtime for several nights to insure rest. I also use morphia and bromides during the day to quiet the nervous system. Morphia will sometimes check the dyspnea and give them rest when nothing else will. They should be put on a strict Karell diet for four or five days; this is twenty-eight ounces of milk, given at four feedings,—nothing else by mouth. This alone will sometimes start the kidneys to secreting, often as much as six to eight quarts in twenty-four hours. After the patient is quiet and accustomed to being in bed, I start digitalis, usually from twenty-four to forty-eight hours after they are put to bed, twenty to thirty minims every four hours. An old remedy, and one that is frequently used with good results, is digitalis, squill, calomel, one grain of each, given three times a day. The bowels should move at least once a day, preferably with a saline or a mild purgative. Severe purging is contra-indicated as you already have an engorged and edematous mucous membrane of the entire intestinal tract. If the kidneys should not start acting freely in two or tree days, it is advisable to increase your dose of digitalis and give other diuretics, as diuretin or theobromin. Some clinics are using calcium chloride intravenously to reduce edema. As yet, this is in the experimental stage, though some clinics are reporting good results.

As the edema disappears and the heart muscle gains some of its tone, the diet may be gradually increased up to a semi-solid diet, *adhering strictly* to a *salt free* diet and limiting your fluids to 1,000 c.c. in twenty-four hours. After this stage, they should be handled as any other case of myocarditis with failing compensation, but their stay in bed should be a great deal longer. They should not be allowed up for several weeks after they are symptom-free. By symptom-free I mean a normal pulse in rate and rhythm, and ability to sleep flat without discomfort. When you begin to let them up, it should be done very gradually; in fact, it is just as important to watch your exercise each day as it is to insist on absolute rest in the beginning. The object is to increase the endurance or efficiency of your heart muscle by gradually increasing the load.

January, 1921, I was called to see a white girl, age fourteen, and found her propped up in bed panting for breath. She was swollen almost beyond recognition. Her lower limbs, abdomen, and even her face, were edematous. Her respiration was very rapid and also her pulse. She had a to-and-fro heart murmur, heard all over the front of her chest. The heart was very much enlarged. I knew from the surroundings that I could not handle this case at home, so I refused to prescribe for her until she was placed in a hospital with the understanding that she stay there until I gave her permission to leave. She entered the hospital January 20th, and remained until May 29, 1921, a little over four months. She was put to bed and propped up at an angle of forty-five degrees, and given morphia ¼ gr. hypodermatically for several nights; she was also given tincture of digitalis, minims fifteen, every four hours, and a stric Karell diet for four or five days. At this time the kidneys were acting very freely and edema began to disappear. More food was gradually added, adhering to a strict salt free diet, and checking the fluid intake and output. The patient was kept in bed during her entire stay in the hos-

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pital except being up in a rolling chair two days before returning home. She was watched very carefully as to exercise and diet, for, on discharge, she ran a pulse around 90 to 100, and was symptom-free while performing the ordinary duties around the house. When she stepped beyond this, her pulse rate would go up and she would have dyspnea. At this time she had a very large heart with a loud diastolic and systolic murmur which could be heard both at the apex and base.

The patient reported at my office October 28, 1924, for an examination, nearly three years since I first saw her. She walked several blocks to the office, her pulse rate was 84, and she was symptom-free. She stated that she had been doing office work for nearly a year and danced occasionally without trouble. At this time only a systolic murmur was heard, best at the apex, and conducted toward the axilla. I report this case in detail to show what may be obtained by prolonged rest in bed, co-operation on the part of the patient, parents and doctors, and a graduated exercise when the patient is let up.

Chronic Syphilitic Aortitis.—This should be handled as any other case of myocarditis with failing compensation except the syphilis should be treated at the same time. The recognized method of treatment at present is to give a four weeks course of mercury first, preferably by inunctions. If at this time the heart muscle has gained sufficient tone, one of the arsenical preparations may be started, preferably neosalvarsan, beginning with a .02 gram dose and increase each week until the maximum of .09 gram is reached. Give six doses provided the patient stands it well, then another month's treatment of mercury. After this, repeat the entire series until your blood Wassermann is negative. My experience with these cases has been very limited, except for short periods of time. The results as a rule are not very satisfactory; however, I have in mind a few cases that have done well under this treatment, but the bulk of them do not stay well long.

Chronic Cardiac Hypertrophy Secondary to Hypertension.—This really does not belong in the category of cardiac disease, but the heart or the symptoms of cardiac failure is what the physician is usually called upon to treat. Myocarditis with failing compensation is one of the end results. The prime object in this condition is to locate where possible the cause or causes of the hypertension and remove them. Remove all foci of infection. The same instructions should be given here as to the case of myocarditis with compensation. The patient should get as much outside recreation as he is able and capable of taking, such as walking, golfing, fishing, etc., but there should be no violent exercise. We should insist on their living a quiet and peaceful life, on a light salt-free diet. Anything that helps relieve the hypertension will relieve the load on the myocardium. For the acute attacks with dyspnea and vertigo, rest in bed, purging, and venesection are advised. I have taken sixteen to eighteen ounces of blood from these cases and have relieved their symptoms for several weeks, sometimes months. I strongly recommend it in extreme cases where the heart has more than it can do. The nitrites and the iodides are sometimes of benefit, but their action is very fleeting. The cases of failing compensation should be handled as any other—resort to digitalis. It has no effect on elevated blood pressure.

In cases of *Severe Precordial Pain or Angina Pectoris*, an ampule of amyl nitrite broken and inhaled slowly often relieves the attack; likewise a nitroglycerin tablet 1/100 gr. put on the tongue may relieve, together with an icebag over the heart. Morphia also often gives good results.

The cases that are subject to chest or substernal pain should be exceedingly cautious about their exercise. They should be cautioned never to do anything in a hurry, as climbing a flight of stairs, or running to catch a car, more especially after a meal. They should always carry nitroglycerin tablets in their pocket, and when they feel an attack coming on, take a tablet and sit down until the attack wears off. I once read of a case that would be thrown into severe attacks of chest pain by walking from the dining room to the adjoining room immediately after a meal. The patient was instructed to have a comfortable chair placed by the table and sit there for thirty minutes after each meal; this she did, and the attacks subsided.

In handling any case of heart disease, it is absolutely necessary that you have thorough co-operation between family, patient and doctor. Without co-operation one can do nothing. With it, many of these so-called old chronics may be carried on for years in fair comfort and usefulness.

I would summarize my treatment in four words: diet, digitalis, rest and co-operation—but the greatest of these is co-operation.

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503 *Medical Arts Building.*

PATHOLOGY AND SYMPTOMATOLOGY OF INFLUENZA.*

By W. E. JENNINGS, M. D., Danville, Va.

No patients die of the simple forms of influenza. Death is due in a large proportion of the fatal cases to pulmonary lesions.

The pathological picture presented at autopsy may be composed of so many complex and varied pictures that it is a difficult matter to give a clear account of the lesions.

True lobar pneumonia has been reported in influenza but this is a rare finding. However, a whole lobe may be consolidated owing to the confluence of patches of bronchopneumonia. As Wolbach has pointed out, two pictures of the lungs may be distinguished in those who have died within a very short time after signs of pneumonia have appeared clinically, and in those who have lived ten days or more. In the former class may be placed those cases of sudden death from overwhelming fulminating infections that are occasionally seen. In the early cases the lungs as a whole are extremely red and congested, while beneath the parietal layer of the pleura numerous hemorrhages are seen, pin-point in size, or the whole surface may appear mottled with hemorrhages about the size of one's little finger nail. The organs are partially collapsed, lax, and of a rubbery feel, not so solid and firm as in the case of gray hepatization of lobar pneumonia. Tyler has called this the "diffuse, congested and edematous type."

Some times a dark red fibrinous exudate may be noted on the pleura. On section the cut surface is a dark red although in areas a more vivid color and angry appearance may be seen. The bronchi are very congested and contain very little if any muco-purulent material but a rather frothy reddish material. Microscopically in the case of patients who die quickly in a condition of acute alveolar emphysema a deposit of hyaline fibrinous material is found on the alveolar walls. The intervening alveoli are compressed and filled with exudate which in the early cases is largely serous or bloody and contains but little fibrin. This hyaline fibrinous material arises from the smallest bronchioles and alveolar ducts and is forced into the alveoli by air. In one part early lesions may be found, while in adjoining regions may be noted lesions much further advanced.

Taking the whole course into consideration, Wolbach is of the opinion that the reaction to Pfeiffer's bacillus is less intense in the later than in the earlier stages. It must be borne in mind that secondary invaders may step in at any stage and their characteristic lesions mask that produced by Pfeiffer's bacillus. But sometimes the lesions remain separate in the same lung, or even in the same lobe. Occasionally peribronchial abscesses are seen, usually small and scattered in area, although they may be found in clusters. Occasionally large abscesses are found and are probably caused by infarcts. There are practically always found small punctuate hemorrhages beneath the pleura.

The heart is usually affected to a greater or less extent. A slight excess of clear pericardial fluid is generally found. Subpericardial punctate hemorrhages are very common. The heart itself in the majority of cases shows dilatation of the chambers on the right side. Except for cloudy changes in the myocardium, nothing abnormal is found. The heart muscle is very definitely softer than normal in a small per cent of cases.

The kidneys are, as a rule, greatly congested, the stellate veins are injected, and fine hemorrhages are often seen in the pelvis. In other cases the cortex is slightly broader than normal and cloudy swelling is present.

Symptoms.—The onset is usually sudden, although there are certain numbers of cases of which the onset is much more gradual and lasts from a day to a day and a half. The symptoms at the onset are not unlike those complained of at the beginning of other acute febrile conditions. Definite chills are uncommon but there is generally a feeling of chilliness. The temperature rises rapidly to 103 and occasionally to 105, the face becomes flushed, the conjunctivae are injected and the patient takes to bed with widespread aches and pains which are especially marked in the lower part of the back and muscles of the leg. There is a general feeling of prostration and malaise. The patient is drowsy and looks limp and

*Read as part of the symposium on Influenza at the meeting of the South Piedmont Medical Society, in Danville, Va., November 18, 1924.

heavy, and dull about the eyes. Usually there is very little coryza, but the patient may cough a little and complain of hoarseness and sore throat or a pain behind the sternum. Sometime the frequency of the cough is in striking contrast with the negative chest findings. Less often the disease may commence with nausea and vomiting, pain in the abdomen and diarrhea. The affection may begin with a sharp epistaxis. The tongue is dry and covered with a brown fur. The lips are slightly cyanosed even in the simple forms of influenza. Examination of the chest usually reveals little abnormality, but sometimes scattered, coarse rales may be made out.

In comparison with the high temperature, the pulse rate is but slightly raised and the respiration is rarely over twenty. These simple cases usually last from three to five days, when the temperature comes down by sharp lysis although crisis is sometimes observed. Drenching sweats are common even where antipyretics are not used. The patient usually feels played out for several days, and emaciation is quite considerable even after a mild case. Some patients may be ill for a week or more with acute laryngitis and aphonia, and never show a temperature above 99 or 100.

As far as can be ascertained no patients die of simple influenza.

Between the simple and the pneumonic forms there is a group of cases in which there is more sputum and more definite signs of bronchitis than in simple influenza, but the condition of the patient is not serious and no consolidation of the lung can be made out. In the present state of our knowledge of the disease, it is difficult to state what are, and what are not sporadic cases of influenza even if the bacillus influenza is the predominant micro-organism in the sputum.

There is the more severe type or the pneumonic form, in which the onset is sudden and from the first the symptoms are graver than in simple influenza. There may be severe epistaxis, headache, body pains as in the simple form, but together with these symptoms there is great respiratory distress, a hacking cough, cyanosis, and marked dyspnea.

The condition is alarming and much more so than the examination of the chest would seem to justify.

On percussion there is diminished resonance, but no actual dullness. In auscultation a rather patchy diminution of the respiratory murmur is made out. A few moist rales may be heard. The cyanosis increases and the patient may die in from thirty-six to forty-eight hours.

The condition of the heart may remain remarkably good until just before the end, when its action becomes very rapid, the pulse thin and thready, and the patient expectorates a quantity of frothy blood stained fluid. The temperature may drop to normal before death. The temperature curve is a very irregular one.

Recovery by crisis is not uncommon, although the temperature usually comes down by lysis. A rapid fall to subnormal, when not accompanied by a lowering of the pulse and respiration, is a grave sign. Cyanosis is a prominent feature in the clinical picture of these cases. It may be of a dark reddish blue variety, seen in lobar pneumonia, but in the majority of instances it is of the lilac or heliotrope variety described by French. It may be seen over the entire face, or it may be confined to the ears and mucous membrane of the lips. The cyanosis is not due to embarrassment of the right side of the heart, but to some lesion of the respiratory epithelium which prevents the oxygen in the alveolar air from entering into the blood. It has been found that the fault does not lie in combining power of hemoglobin and oxygen. In fact, a satisfactory explanation has not been found.

The white blood cell count is rarely increased, and very often is below normal.

705 *Main Street.*

MEDICAL TREATMENT OF INFLUENZA.*

By I. KEITH BRIGGS, M. D., South Boston, Va.

Prophylaxis.—Preventive measures directed against the contraction of influenza, especially in epidemic periods, are either desirable general hygiene or measures based upon empiricism, since we are doubtful as to the causal organism and are ignorant of the causes which led to the occasional world-wide spread. Considerable difficulties are found in trying to carry out preventive measures against influenza, owing to the short incubation period and the non-recognition of the disease in its early stages before the patient has conveyed the infection to a large number of persons.

Personal Protection.—Rooms should be airy and well ventilated. The individual should

*Read as part of the symposium on Influenza at the meeting of the South Piedmont Medical Society, in Danville, November 18, 1924.

guard against draughts and chilling of the body surface. He should gargle the throat and spray the nose with a mild antiseptic, night and morning, and in epidemics keep away from public gatherings and crowded conveyances. Vaccine therapy, if used, must be carried out in combination with protective agencies. As a prevention, vaccines are in an experimental stage, yet a combined vaccine of influenza bacillus, streptococci and pneumococci seemed to do some good in British Naval and Air Forces, although the immunity produced was of a short duration.

General Measures in Treatment of Acute Influenza.—The patient should be put to bed in a well ventilated, warm room, with no draughts blowing on him, and kept in bed until fever has been absent forty-eight hours. Calomel is given followed by salines or castor oil to combat toxemia. Large quantities of water, soda water, lemonade, or barley water are given to flush kidneys. Liquid diet is advised, although egg-nogs, custard and junket can be given. For pain and fever, the ice cap to the head, together with phenacetin and codeine internally generally give relief, although it is necessary at times to give a hypodermic of morphine, grain 1/6 to 1/4, and atropine grain 1/150. Warm sponge baths and alcohol rubs afterwards are soothing and will often induce sleep. For sleeplessness, Dover's powder, trional or luminal may be given. For simple irritation of the throat, antiseptic gargles are used, but if the tonsils show any sign of acute infections they may be mopped with 6 to 8 per cent nitrate of silver solution daily. In case of hoarseness or laryngitis, the patient may inhale compound tincture of benzoin, one drachm on boiling water, and have ice bag or mustard plaster applied over throat. No treatment is needed for slight epistaxis, but, if severe, the nostrils may have to be packed with gauze saturated in adrenalin, and hemostatic serum given hypodermically. For cough, ammonium carbonate and carbonate of creosote in syrup of wild cherry may be used as an expectorant, with codeine, if the cough is bothersome.

In case of collapse, whiskey, aromatic spirits of ammonia and strychnine may be given. Other treatments, such as treating severe cases with the whole blood from a convalescent patient, may at times be necessary. In such instances, the convalescent from whom the blood was taken was one who had been free from fever for four or five days. When possible, a convalescent with symptoms and complications of the same type as those of the patient treated would be used. In most cases the blood was injected within a few minutes of its withdrawal, but when this could not be done 2 c.c. of a 2 per cent sodium citrate solution was used to prevent coagulation. The amount of blood used was 10 to 20 c.c. injected subcutaneously into abdomen or thigh. In most every case the injection had a favorable effect upon temperature and the general condition of patients was improved.

Bayeux states that influenza involves a reduction of pulmonary ventilation and diminished oxygenation of the system which is increased by the fever. Broncho-pneumonia frequently complicates influenza; the respiratory embarrassment becomes more serious and may cause a fatal asphyxia. Artificial oxygenation is indicated in such cases, but in practice oxygen inhalation involves the use of complicated apparatus. Consequently the author advocates the use of the subcutaneous injection of oxygen which he has used for many years in all types of influenza. Those injections should be given at an early stage and continued as long as fever or symptoms of insufficient respiration persist. The dosage is based upon the rapidity of the absorption of the oxygen. The greater the respiratory embarrassment, the greater the absorption. Dyspnea is relieved, the lungs are less affected and less liable to further infection, fever is reduced and renal excretion is improved. Bayeux has never observed any outward effects of this treatment, but has found that it shortens the course of the disease and improves the prognosis.

Willmore and Gardner Merwin, of England, report a treatment used in influenza, based on the following considerations:

1. The causative organism in influenza is not definitely determined, hence specific therapy is not indicated.

2. A marked leucopenia is invariably found in early uncomplicated cases, corresponding in degree with a clinical severity of the disease and a consequent lowering of a patient's resistance.

3. A profound toxemia is noted in the severe cases, with vomiting, abdominal pain and deep cyanosis out of proportion to the

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pulmonary involvement found at autopsy—very similar in type to acid toxemia.

Treatment was, therefore, two-fold: First, hypodermic or intramuscular injection of sodium nucleinate to stimulate the production of leucocytes directly. The sodium nucleinate was obtained in ampules of 2 c.c. containing .05 gm. per c.c. The usual dose was one ampule given intramuscularly although a second dose was sometimes given at request of patient. Second, large doses of an alkali in the form of sodium bicarbonate, one drachm every four hours, were given and as much glucose in food as patient would take. In severe cases glucose was given by rectum, subcutaneously, or intravenously in a 3 per cent solution with sodium bicarbonate in 2 per cent solution. In addition free purgation and cardiac stimulants hypodermically were employed, and where there was much mucopurulent expectoration a mixture of potassium iodide and creosote was given. In nearly all cases, rapid improvement followed the injection of sodium nucleinate, the crisis occurring usually in forty-eight hours after first injection.

This treatment was used in a large number of cases and gave excellent results. Vaccine therapy in acute cases is seldom necessary; in sub-acute or chronic cases with lung involvement, the combined influenza, streptococci and pneumococci vaccine seems to give the best results.

By heroic doses of salicin, Turner states that he is able to shorten an attack of simple influenza. He says this method seems to destroy the infectivity so that the disease does not spread throughout the household. He used 20 grains every hour for twelve doses then 20 grains every two hours for the next twelve hours. Bleur gives by mouth pills coated with gelatine containing 20 centigrams of methylene blue four times a day, but prefers intravenous injections of 1 to 2 c.c. of a 5 per cent sterilized solution. He states that there is no danger and the attack is shortened and complications prevented. Solutions of gold, tannic acid, silver and arsenic have been used and much is claimed for such treatments. Capitan employed intramuscular or intravenous injections of colloid arsenic, using 6 to 9 c.c. of colloid arsenic alone, or combined with equal amount of colloid silver, and gives three or four injections. Thirloix used intragluteal injections of milk and found it more powerful than other colloids. He used 5 to 10 c.c. of cold milk which had been sterilized and filtered, although a local abscess may form and violent reaction follow. He continues with this morning and evening, at the same time giving rectal injections of 20 grains of eucalyptus leaves in one quart of water. Ferrarinin commences intravenous injections of 1 centigram of perichloid of mercury in 1 c.c. of normal saline if signs of pulmonary congestion appear and continues this treatment every four or five days, causing fall in temperature, improvement in pulse and decrease in cyanosis, this method being aimed at the pneumococci and streptococci which are such frequent invaders of the lungs.

Anti-pneumococcic and anti-streptococcic serums have been used and from some quarters quite favorable results reported.

The Pneumonic Form.—If possible the services of a nurse should be secured at once. The patient should be isolated especially from any others with influenza or any one with the streptococcus hemolyticus in their throats. The indications are to combat toxemia, provide rest, and to foresee and treat symptoms as they arise. The window should be wide open, and a plentiful supply of water and magnesium sulphate given every morning unless diarrhea be present. The patient should be fed as in simple influenza. For pleuritic pain a mustard plaster or the ice bag will help to relieve, but often it is necessary to give a hypodermic of morphine grain 1/4 or 1/6 and atropine grain 1/150. If cough is dry and hacking, give codeine grain 1/8 with glycerine 15 minims and spirits of chloroform 2 minims, in water every three hours.

Sleep is essential and Dover's powder or hypnotics are often necessary. Tympanites is often a serious matter with which to deal and turpentine stupes should be used. A rectal tube inserted while the stupes are applied allows the flatus to escape more readily. Liquids must be reduced and carbohydrates, such as sugar, decreased to the minimum. Turpentine may be given by mouth in 15 drop doses. If turpentine enemata are given, it is a good plan to give at the same time an ampule of pituitrin hypodermically every four hours.

If there is a nephritis, the bowels must be kept acting. A mustard plaster may be used over the lumbar regions and a hot colonic irrigation given to induce the kidneys to act. Atropine grain 1/75, night and morning, is a

good respiratory stimulant. Oxygen may improve color in cyanosis.

It is a wise plan to digitalize the heart from the first and keep it so in order to be ready when the strain comes upon that organ. An ice bag over the precordium will often relieve cardiac distress. In failing circulation a "hypo" of camphor in oil and caffeine and sodium benzoate will help. Venesection seldom produces any marked betterment, but Ravant highly recommends it in pulmonary edema.

In protracted or intermittent fever there is one treatment that is called for and cannot be emphasized too often; that is puncture of chest repeatedly in search of pus. In meningitis, daily withdrawal of cerebrospinal fluid under measured pressure is indicated, and, if the organism is cultivated, a vaccine may be made and injected. Influenza in pregnancy requires that every effort be used to keep the patient from having premature labor or abortion.

SOME NORMAL AND ABNORMAL PHENOMENA OF THE THYROID GLAND.

By JETER R. ALLEN, M. D., Marshall, Va.

The human thyroid is made up of two main masses. The lateral lobes are joined together in the middle by the isthmus, these combined portions weighing from 30 to 35 grams. It is enclosed by a capsule which maintains its position, and is only of interest surgically. From the capsule, septa extend into the gland, forming the glandular lobules. Accessory lobes are often found. The thyroid is superficially situated and covered by the skin, fascia, infrahyoid and platysma muscles, and in the normal individual is easily palpated.

Blood Supply.—It is very vascular in blood supply, receiving its supply from the superior and inferior thyroids on either side and their anastomoses which form a capillary network around the acini.

Nerve Supply.—The nerve supply has not been definitely determined, but the sympathetic branches constitute the chief supply, which may be supplemented by the superior, inferior and recurrent laryngeal nerves.

Physiology.—The thyroid gland liberates an internal secretion which exerts profound effects upon the growth and metabolism of the individual and also bears important relations to immunity. It is closely connected with sexual development and function, this influence being more pronounced in the female than in the male.

The thyroid effects are probably reflected in all active cells of the body, and are in general catabolic, accelerating metabolism and increasing cell activity. Most of this effect is due to the active iodine compound secreted (thyroxin). So it would appear that the abnormal phenomena which occur would be attributed to disturbances of this secretion.

There is some direct or indirect connection of the thyroid with other endocrine glands and their secretions, but rather than get myself connected with the many different theories and opinions, I will confine myself to the thyroid.

We know that the thyroid plays an important part with the individual's growth and development, both mentally and bodily, especially in the female in regulating the process of menstruation, and during pregnancy hypertrophies to compensate for the added functional requirements. Therefore, we have physiological hypertrophy at puberty, the menstrual period and during pregnancy, but, while this is the rule, this physiological pendulum may swing too far and assume pathological conditions.

Thyroxin effects the blood pressure, pulse rate, and metabolism: First, nitrogen metabolism, next, fats, and finally, carbohydrates—which may be due to either direct stimulation or indirect effect.

There are two main divisions of disturbance brought about by perversion of thyroid function: Hypothyroidism from lack of secretions, and hyperthyroidism from an excess of secretions. Hypothyroidism is the less frequent that we are called upon to treat and the treatment is more easily decided upon. The symptoms occur as a rule in early life—during the development of the child and up to puberty. They are manifested by reduced metabolism, lowered temperature, short stature, increased carbohydrate tolerance, irregular development of epiphyses of the long bones, short stubby fingers and poor nail development, slow pulse, dry rough skin, scant dry hair, and slow development of the hair peculiar to sex, mental dullness, thick tongue, dull expression and lack of mentality. Teeth are irregular and dentition delayed, and at puberty sexual organs are undeveloped and the menstrual flow is slow in being established and irregular as to time

and quantity. The treatment of this condition, in addition to hygienic and nutritional means, is thyroid medication.

Hyperthyroidism is a disease which requires some explanation because it is often confused with another condition known and described as exophthalmic goiter. The former disease, as its name implies, is caused by an excess of thyroid secretion; therefore, you would expect to find the symptoms produced to be just the opposite of hypothyroidism or myxedema. According to Plummer's classification, there are two distinct types of hyperthyroidism, each due to different pathological changes in the gland. In simple hyperthyroidism there is not the typical hyperplasia of the glandular substance, but it may be associated with adenoma in the gland and the clinical syndrome is distinguishable.

The syndrome associated with adenomata of the gland is characterized by increased basal metabolism, caused by an excess of normal hormone liberated in the tissues, and begins about middle age. It is evidenced by nervousness, tremor, tachycardia, loss of strength and weight, and a tendency to hypertension. Later we may find a stage of myocardial degeneration.

The underlying cause of stimulus that activates the gland to adenomatous growth and over-secretion is not definitely known. The causes are usually some focal infection or mental strain, often called change of life by the laity.

Naturally the treatment would be to correct and treat the underlying cause if it can be found, and would be along medical and psychological lines.

Exophthalmic goiter, often miscalled hyperthyroidism, is also known as Graves' disease, Basedow's disease, Flajani's disease, and Parry's disease. It is brought about by increased activity of the thyroid gland, is accompanied by enlargement and increased vascularity of the gland, and, in addition to the symptoms mentioned under the head of hyperthyroidism, has the characteristic eye symptoms.

Etiology.—Heredity appears to bear a part in a fair number of cases. This condition occurs about ten times as often in the female as in the male, and is usually seen in young adult life from sixteen to forty years of age. Emotional causes, such as fright and long-continued anxiety, are often exciting causes, and frequently there is a neuropathic family history.

By far the most frequent cause is psychic insult.

Symptoms and Diagnosis.—The symptoms are enlarged gland, palpitation of the heart and tremor, nervous apprehensions, loss of weight, insomnia, dyspnea, vomiting at times, headaches, precordial pains, rapid pulse, often dilatation of the heart, increased basal metabolism, and increased oxidation of the body. Later there may appear the characteristic eye signs, which are exophthalmus. In addition we may note Stellwag's sign, a widening of the palpebral fissure; von Graefe's sign, a failure of the upper lid to follow the eyeball in looking downward, and Moebius' sign, a weakness in convergence of the eyes.

Treatment—Surgery gives the brightest field of success. Medical treatment is less certain. X-ray has some advocates, and organotherapy may help in some, but the best treatment, leaving out surgery, that I have found is elimination—removal of all causative factors so far as they can be ascertained—and sedatives. Nothing, however, gives bright results, as a rule, in the hands of the general practitioner.

Goiter, also called bronchocele and struma, is a chronic enlargement of the thyroid gland. It is not due to neoplasm, and occurs more frequently in certain localities, especially mountainous sections. Like the rest of these diseases it is found more often in the female than in the male, and may be found at any age from childhood to old age, though the percentage of cases rises rapidly at puberty in both male and female. It is the expression of an effort on part of the thyroid to maintain a normal quantity of thyroid hormone to meet the needed deficiency, or may result from nervous, toxic or chemical effect.

The first change in the gland is hyperplasia of the epithelia to meet the physiological demands for iodine to compensate for the imperfectly formed secretions. General increased demand of the body for more thyroid hormone, such as occurs at puberty and in pregnancy, will cause a physiological hypertrophy which, if it persists after the need has passed, results in goiter, called simple goiter.

There are two kinds of goiter, depending

upon pathological changes in the gland, viz.: simple and colloid.

Simple goiter is caused, as I have stated, from excessive hyperplasia in physiological process. Other causes are focal infection, intestinal intoxications, but more often it is due to lack of iodine received from outside sources by the individual. Simple goiters rarely cause symptoms and never attain a large size.

Colloid goiter is a non-toxic type of goiter which may not give symptoms for years, except those that produce pressure upon surrounding structures. They may become very large and hang in great masses, which may be median or lateral depending upon the lobe or lobes involved. The gland alveolar are distended with colloid material, but the epithelia are not notably altered. These changes may not effect all the acini, but may here and there throughout the gland.

The complications of interest are occurrence of degenerative or proliferating changes in a pre-existing colloid goiter. These changes usually occur late in life and the patient will exhibit nervous and all other symptoms of toxic goiter except the exophthalmus.

The treatment mainly is preventive. It is a decided question that goiters are caused or brought on by a deficiency in iodine in the individual. Recently the different state health boards, including ours, have been recommending the use of some iodine product with the foodstuff, especially in localities where goiter is prevalent during the growth of the individual and at periods of life when there is an especial call of the system for iodine. Sodium iodide is the salt of choice. Among others, there is a salt put up by Mulkey's Salt Co., Detroit, Mich., and this is sold in most retail stores. It is nothing more than simple table salt to which just enough sodium iodide has been added to meet the iodine needs. We all know that goiter is more prevalent in mountainous sections than near the sea coast, due, no doubt, to iodine in the drinking water received from the sea weed which grows about the coast. While our waters in this section are comparatively free from iodine, I have noted this especially since leaving the lower section and taking up my profession in this part of the state.

Personally, I do not believe that all individuals will need iodine treatment to make up for this deficiency, but the main point which I wish to emphasize is to be always on the lookout for those who are beginning to show symptoms, especially in growing girls, and by so doing we will prevent many cases of goiter. When we do feel that iodine treatment is indicated, we should observe the patient from time to time, and should toxic symptoms develop we should go slow or discontinue treatment for a while.

Other causes, such as focal infections—of the tonsils, for instance,—should have appropriate treatment; also, maintain the gastro-intestinal tract in a healthy condition. Good hygiene and suitable diet are important. Surgery is often resorted to for purely cosmetic effects, and should not be delayed too long if medical treatment is not satisfactory, or if there is evidence of degenerative or toxic changes. Glandular therapy at this time is creating some interest in all classes of thyroid dysfunctions, but time and preparation will not permit me to discuss them on this occasion.

SUMMARY

The thyroid is essential to health and growth.
It may assume pathological manifestations.
Pathological phenomena occur oftener in the female than the male.
Early treatment gives brightest results.
It is more easily prevented than cured.

DIAGNOSTIC AND THERAPEUTIC ADJUNCTS TO MEDICAL PRACTICE AS AFFORDED BY THE LYON-MELTZER NON-SURGICAL GALL-BLADDER DRAINAGE — TECHNIQUE—CASE REPORTS.*

By GEO. P. HAMNER, M. D., Lynchburg, Va.

The method is so extensively used at present, and so well known, that only a brief mention of the technique is necessary.

The duodenal tube is introduced into the stomach, after first cleansing the mouth and fauces, to about the 56 c.m. mark. The patient is then required to assume a reclining position on a couch or bed, and the stomach is lavaged with about 250 c.c. of a 1-12,000 solution of potassium permanganate; after which the tube is now slowly swallowed, with the patient lying on the right side, to the 76 c.m. mark. The free end of the tube is then dropped over the side of the couch into a white dish or pus basin so that the first appearance of bile may

*Read at the meeting of the South Piedmont Medical Society, at Danville, Va., November 18, 1924.

be noted. The time required for the passage of the Rehfuss or Einhorn bulb through the pylorus is variable, depending largely, of course, upon the condition of the gastric function, the pyloric orifice, and the individuality of the patient. The time is usually between thirty minutes and one and a half hours. In very rare exceptions though, fifteen minutes has been the minimum time for this stage of the operation.

As soon as the bile makes its appearance, which is an indication that the bulb is in the duodenum, about 100 c.c. of a 33 1/3 per cent solution of magnesium sulphate, which has been previously sterilized and warmed to about the body temperature, is introduced slowly through the tube. After this, aspiration is immediately begun by attaching a bottle with perforations in the rubber stopper for two glass tubes, and a two-way rubber aspirating bulb is attached for creating a vacuum in the bottle.

The first bile which flows back into the bottle with the magnesium sulphate solution is usually light in color and is recognized as bile from the common duct. This is classified as specimen "A." Later the bile becomes of a much darker hue, is thicker and more tenacious, and, according to Lyon, is recognized as bile from the gall-bladder proper. This is marked "B."

Finally, after the bile tract is completely emptied, the bile is much lighter in appearance and thinner in consistency. This specimen is labeled "C." and is recognized as fresh bile from the liver itself or hepatic duct. The three specimens having been obtained under conditions as nearly aseptic as possible, are then submitted to the laboratory for microscopical examination and culture.

Many erroneous impressions were at first formed by both the medical profession and the laity regarding this method, and some medical men scorned the idea which became prevalent that the tube could be introduced directly into the gall-bladder, and that it could be emptied in this way. Of course, no such claim was ever made by the originator, or anyone else who used the method, and the profession has now fully realized that no such claim is made by those who are doing this work.

A word here about the effects: The discomfort to the patient is negligible during the procedure, but there is a certain amount of exhaustion attendant upon it and following the treatment, due principally, I believe, to the flushing of the duodenum by the magnesium sulphate solution which escapes into the jejunum, and also to the volume of fluid left in the duodenum after the procedure is completed. This latter comprises about 250 c.c. of a solution of Ringer's tablets in warm water. This I formerly used, but have long since abandoned it in favor of a mild, alkaline antiseptic manufactured by one of our retired physicians, and known by the trade name of "Nabuso," using 60 c.c. of this preparation in 200 c.c. of warm water. On account of the above mentioned exhaustion, I only use the drainage in practice on alternate days, treating the cases as ambulant, though some gastro-enterologists keep these cases in bed and drain every day for from three to five weeks.

But I have devoted much more time to discussing the technique than I had intended, and will now recite some cases, with the results obtained.

Case 1.—Mrs. C., white, married, about thirty years old, has been having typical attacks of biliary colic for the past two years. When seen with her physician she was suffering distressing nausea and vomiting, with sharp cramping pains, and with acute tenderness over the entire abdomen, but greatly intensified over the region of the gall-bladder. The nausea was so severe and persistent and the pain so constant, that it was thought inadvisable to attempt gall-bladder drainage by the Lyon-Meltzer method at that time. In fact, I frankly expressed my firm conviction that this was a case of cholelithiasis, and one for the surgeon rather than for me. Her physician, who was also a surgeon, concurred in this fully, but the patient was violently averse to surgical methods and, besides, as she was very fleshy, was not considered a very favorable subject for operation. A compromise of watchful waiting was instituted, and gastric lavage resorted to for the control of nausea, and opiates given for the pain. Five days later, after a marked improvement in the patient, a gastric analysis was made and the gall-bladder drained at the same sitting. She was requested to return for another treatment on the third day, but as relief was immediate and, as later developments proved permanent she refused further treatment.

Case 2.—Mrs. B., white, young married woman about thirty years old. When seen by me she was suffering from what appeared to

be a plain case of acute catarrhal jaundice. All of the typical text-book symptoms were present: nausea, vomiting, itching, constipation, and the skin deeply colored with bile. As she had been suffering several days with these symptoms, the whole abdominal region was quite tender and sensitive to the touch. This soreness was attributed to the persistent retching. There was no characteristic pain in this case.

The first attempt at drainage was unsatisfactory, as only a small quantity of tenacious mucus and a number of short, white, tough plugs of mucus about as large around as a crow's quill were obtained. But on the second attempt a large quantity of black, thick, viscid bile came into the bottle following the apparent dislodging of more small plugs of mucus similar to those obtained on the first day. Subsequent drainages were accomplished without difficulty and, after the third treatment (the treatments being given on alternate days), the jaundice began to disappear, and in less than ten days the skin was clear. She had about six treatments and at this date, two years later, she has had no further trouble with her gall-bladder. The laboratory findings in this case were negative to any bacterial infection of the bile.

Case 3.—This was a young married woman of about thirty-five, who gave a history of having had a cholecystectomy eight months previous to the time of her present illness. The operation had given relief from the pain and tenderness she had experienced around the gall-bladder; no gall-stones had been found. About ten days before she was seen by me she began having more trouble, and rapidly became jaundiced. When seen in consultation with her physician she was deeply jaundiced, and there was nausea and vomiting. She complained of pain and tenderness over the entire hepatic area, and was running a temperature ranging from 99.5° to 101° F. Her physician did not feel that it was a case for further surgical intervention and asked if I thought the Lyon-Meltzer treatment would afford her relief. I advised its trial at least.

On the first treatment very little bile was obtained, but, as in the preceding case, a quantity of mucous plugs were noticed in the solution of magnesium sulphate used for facilitating the flow of bile. At the second attempt more bile was obtained, but even this was not completely satisfactory, though the patient was already improved, with a normal temperature, and skin and sclera clearing rapidly; not until the third treatment though, did there appear to be a complete emptying of the gall-bladder, when rather suddenly a large quantity of inky black bile appeared, and of the consistency of thick syrup.

The patient had so far recovered now that she was allowed to leave the hospital and go to the home of a relative in the city. The two subsequent treatments were given at the office, and the patient returned to her home in North Carolina. She expressed herself as feeling perfectly well again, and her skin was clear.

Case 4.—Miss R., a maiden lady of advanced aged, referred while already hospitalized. She had nausea and vomiting, with no appreciable pain, but appeared extremely emaciated and debilitated. On attempting to perform gall-bladder drainage a large quantity of tenacious, glairy mucus was aspirated from the stomach, and the tube was greatly delayed in entering the duodenum. The flow of bile was scanty and of a peculiarly turbid character. On submitting to the laboratory, the culture in all three specimens showed heavy growths of colon bacilli. She was treated by gastric lavage and gall-bladder drainage several more times, then put on dietary and tonic treatment until she was in physical condition for a cholecystectomy. This was subsequently done, and the gall-bladder found to be a veritable pus sac, with multiple abscesses in its mucosa.

Case 5.—S. L. F., male, white, about fifty years old. Gave history of having been in robust health until about ten months previous to present illness, when he began to lose weight. Upon examination sugar was found in urine. He was pronounced a diabetic by his physician and treated for this condition, principally by diet, until he was sugar free. No insulin was given. He was kept on a rigid diet, and remained slightly under weight until present illness, which came in the form of a sudden let down after a strenuous political campaign. On examination by a friend whom he was visiting, and who is a physician, he was found to have a temperature of 103° F., and was very much exhausted. He was advised to enter a hospital in Lynchburg and placed himself under a physician of that city. Examination of his mouth disclosed a bad case of pyorrhoea and all of his teeth were extracted. The high temperature persisted, however, and the most complete physical examination, aided by X-ray

XUM

failed to afford an explanation of the temperature, nor could it be controlled by any form of anti-febrile medication. It began to rise regularly every day about 4 P. M., reaching the fastigium about 8 P. M., and would gradually subside to normal before midnight, only to repeat the same performance the next day on the exact schedule time. There was never any sugar found in the urine now, though I believe the blood sugar index was a little above normal. There was never complaint of pain or other symptoms at any time except extreme weakness and loss of appetite.

The general debility increased at an alarming rate from day to day. It was at this stage, after consultation by his physician with Dr. Vanderhoof, that I was called in and requested to make a gastric analysis, and then to obtain bile by the Lyon-Meltzer method for laboratory examination. The Rehfuss test meal was given and a great quantity of thick, glairy mucus was obtained with the crackers and water at each aspiration. The analysis showed an almost total achylia with general insufficiency of peptic secretion.

The succeeding day, gall-bladder drainage was accomplished and a rather small quantity of pale, yellow, turbid bile obtained, which was of the same appearance and consistency throughout the drainage period, eliminating any possibility of classifying the bile as "A." "B" and "C" bile. However, three separate specimens were collected corresponding with that from the common duct, the gall-bladder proper and the hepatic duct as nearly as could be estimated. All three specimens showed a very heavy colon bacillus culture.

Drainage was now practiced daily and the temperature began a rapid decline from the first treatment and subsided entirely in about four days. The patient was put on a much more liberal diet, adding an appreciable amount of carbohydrates, and watching the urine daily, of course, to detect any reappearance of sugar. He was given dilute hydrochloric acid in liberal doses, one drachm three times a day after meals. This was all the medication used. He continued to improve and the bile took on a normal aspect.

Treatment by drainage was now only resorted to on alternate days instead of daily, and this was kept up for four weeks; then twice a week for two more weeks. He was now on full diet, and, much against our advice, was taking large amounts of sweets daily.

Gastric analysis on December 5th, about two months after first seen shows the gastric secretions normal. The patient had gained, or rather re-gained, twenty-one pounds, lost during the first stages of his illness and has remained well for about twelve months.

Case 6.—W. T. R. This was a young white man about twenty-five years old, employed in one of the shoe factories of the city. He consulted me for "indigestion" and a persistent, dull pain in his right side just below the ribs. A gastric analysis showed very little if any abnormality, and the symptoms did not point to a gastric or duodenal lesion. He was averse to an X-ray examination of the gastro-intestinal tract for financial reasons, and after being treated dietetically and with gastric lavage he made some improvement, which, however, was only temporary, and was finally looked upon by me as a neurasthenic. He gradually drifted from my service, a fact for which I was not really sorry, nor did I really feel resentful, as I did not feel that I had helped him any.

Several months later he came in and told me that his regular physician had insisted on his being X-rayed, and that the doctor had requested that I go over the plates with the roentgenologist. Later the physician himself called me and made the request. A study of the plates with Dr. Spencer showed the appearance of an indentation of the duodenum for about half of its lumen as if some object about as large as a black walnut had impinged against it. The most plausible explanation of this rather unusual phenomenon was that it was an enlarged gall-bladder. Lyon-Meltzer drainage was resorted to and immediate relief was obtained after a large quantity of black viscid bile was obtained. Three more treatments were given to insure free drainage, and he has remained well for the past eighteen months.

Case 7.—G. C., white male, twenty-two, referred by his family physician who informed me that he had been very markedly jaundiced for five weeks, but, with the exception of a slight anorexia and nausea at times and an occasional rise of temperature to about 99.5, there were no untoward symptoms, and aside from the pronounced jaundice he suffered no other symptoms. He also added that he had used all the classical methods in an endeavor to clear up this jaundice but without avail, and the patient was becoming more deeply jaundiced daily.

When he came to see me, he was without exception the worst jaundiced person I had ever seen. Every inch of his integument was of a brilliant canary color except his cheeks which had taken on a decidedly greenish hue.

The symptoms were so mild in comparison to his condition that it was apparent this was a case of acute catarrhal jaundice due to biliary stasis. Drainage was instituted and he was directed to return two days later for a continuation of the treatment. When he returned he said there was some improvement, though I told him frankly I could not see it. Whereupon he bared his leg from ankle to knee, and there was a perceptible clearing of both legs, but no where else.

After several more treatments his skin showed a marked improvement over the entire body and after seven treatments he was clear, had gained seven pounds, had a splendid appetite and expressed himself as feeling perfectly well again.

Summary

1. This method of diagnosing and treating certain forms of gall-bladder disease certainly has its application, and can be relied upon to give results.
2. No claim for a panacea for all gall-bladder trouble is made for it by its advocates. There are failures and disappointments met with in its use as in all other medical and surgical procedures.
3. It sometimes can be used as a valuable adjunct to subsequent surgical procedure in tiding the patient over a condition when surgical interference would not be advisable.
4. As shown in at least one of the foregoing cases, it afforded relief and, apparently, a cure in a case in which there was a recurrence of alarming conditions following removal of the gall-bladder by surgery.

207 *Wall Building.*

A PLEA FOR MORE BLOOD SUGAR EXAMINATIONS.

By WALTER P. ADAMS, M. D., Norfolk, Va.

Since the days of Claude Bernard and his famous puncture of the fourth ventricle of the brain, there has been an ever increasing desire for information concerning the carbohydrate metabolism of the body. However, with all the brilliant work of the investigators, it remained for the important discovery of Banting and Best, of Toronto, only a few years ago, to lend new stimulus to the subject.

The sugar supply of the body comes from carbohydrates, proteins, and fats, fifty-eight per cent of protein material digested yielding the same type of glucose as carbohydrates and about ten per cent of fat the same. This glucose normally undergoes a change in structure, which allows the liver to store some of it as glycogen to be used later as necessary. The remainder is carried to the muscles and other tissues where some of it is oxidized and some of it stored as glycogen. Some of this also enters into the formation of body fat.

It is now known that the internal secretion of the pancreas (insulin) is intimately concerned with this change in chemical structure of the glucose which is necessary before glycogen may be formed. Consequently, this pancreatic secretion is all important in the regulation of the amount and type of glucose found in any portion of the body. In abnormal glycemias—hyper, for instance—we find an insufficient removal of this unchanged glucose from the circulating blood and *vice versa*, the reverse in hypoglycemia.

It is interesting to note the maintenance of a nearly uniform concentration of blood sugar in the normal body, no matter what is eaten. The mechanism for the removal of sugar from the blood is so perfect that even after a heavy carbohydrate meal the total blood sugar is only slightly increased. Also, after prolonged starvation, the approximate percentage of blood sugar is maintained almost up to death. This has been particularly investigated by Harris and others, in patients with neoplastic obstruction of the upper alimentary tract.

As pointed out above, we can consider hyperglycemia as being due to lack of insulin secretion by the body. If this hypoinsulinism becomes so marked and so continuous as to cause the excess sugar in the blood to permeate the renal epithelium, we have the well known condition of diabetes mellitus. Hyperglycemia is the basis of all trouble in diabetes. The excess of sugar renders the blood a favorable culture medium for pus organisms. The thirst is caused by the lowered water content of the blood. Polyuria occurs whenever there is an increased blood sugar as evidenced by the intravenous glucose treatment of cardiac or renal dropsy. Tissue resistance is markedly lowered. When we acquire a normal blood sugar in a previous diabetic, we see a disappearance of all these untoward symptoms. However, with the progress of the disease there seems a tendency

to moderate rises of blood sugar and, consequently, in this type of patient, a normal urinalysis often gives no assurance that the blood has continued at a normal level. It is here that a blood sugar examination is quite necessary.

Almost as frequently as we see diabetics, we see cases of hyperglycemia without glycosuria. These patients are potential diabetics, but it is impossible to classify them as such. They can never be found and helped without the aid of blood chemistry. Just as there are no two faces just alike, there are no two kidney thresholds that withstand the same amount of hyperglycemia, and a "renal leak" may never occur if the kidney threshold is high. Many patients are seen whose blood sugar is .2 per cent to .3 per cent and who at no time during observation excrete sugar. It is accepted that a nephritis tends to raise the renal threshold for sugar so that as a nephritis becomes more severe, any glycosuria, if present, becomes less and less pronounced. But the majority of this type of patients are not nephritics. The blood sugar may only be slightly above normal limits; if so, repeat the blood sugar examination in conjunction with one of the glucose tolerance tests and note the type of curve occurring at stated intervals.

These are important patients, some being very poor surgical risks. At any rate, later in life they will probably have cause to thank their physicians if they have treated them as potential diabetics. Those belonging to this type usually have some outstanding focus or foci of infection and are regularly indiscreet in their taking of carbohydrate foods. Their high blood sugar is not persistent with proper diet but they should return constantly, at increasing intervals, for further blood sugar examinations.

It is well to remember the large amounts of experimental data obtained by workers in carbohydrate metabolism. There is probably some regulatory effect of the adrenal secretion of the body on the blood sugar. Cases of Addison's disease have been observed in which the blood sugar was abnormally low. In a normal subject injections of epinephrin cause immediate increases in blood sugar with or without glycosuria. This is due to the rapid conversion of the glycogen of the body into blood sugar. Puncture of the fourth ventricle of the brain will bring on the same occurrence. In the case of epinephrin, the glycogen is taken from the muscles and liver, whereas, in puncture of the ventricle, the liver glycogen is all that is transformed into blood.

There are also various drugs and agents which act as either liver or kidney poisons, or asphyxial agents, and cause hyperglycemia. A main factor in these is the lowering of the renal threshold, causing glycosuria either constant or inconstant in all of these cases. The hyperglycemia is apparently due to the discharge of sugar into the blood from the stored glycogen of the body.

In contradistinction to the insufficient removal of glucose from the blood stream, we have the clinical entity, lately brought out, known as hyperinsulinism. There is evidence that certain people are prone to attacks simulating an overdose of insulin, which are relieved by the ingestion of carbohydrates. The attacks occur before meal time and consist of marked nervousness and weakness and at times tremors simulating convulsions. The patients are poorly nourished, have a low blood pressure, and often have acute heart attacks with beginning pulmonary congestion, tachycardia, and prostration. It is quite possible that the over-utilization of glucose of the blood may have depleted the heart muscle reserve of glycogen, then myocardial weakening follows as a result of under nutrition of the heart muscle, and the circulation is more or less permanently affected. As mentioned before, a lowered blood sugar is also caused by adrenal insufficiency (Addison's disease).

From the above, I believe we will feel justified in having blood sugar examinations done as a routine matter in more cases than in the past. There are many cases which are impossible to diagnose or treat without so doing, and others that we can help in a more permanent and satisfactory way if we have this knowledge concerning their carbohydrate metabolism.

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109 *College Place.*

UNREASONABLE

A noted financier was taken seriously ill at ninety years old and felt that his end was near.

"Nonsense," said the doctor, "the Lord isn't going to take you until you've passed the one hundred mark."

"No, my friend," said the aged banker, "that wouldn't be good finance. Why should the Lord wait until I reach par when He can pick me up at ninety?" —*Business Magazine.*

ENTEROSTOMY, A LIFE SAVER.*

By SAMUEL ORR BLACK, M. D., F. A. C. S.,
Spartanburg, S. C.

Enterostomy is a veritable life saver in many cases of intestinal obstruction, post-operative and otherwise.

Abdominal surgeons agree that whenever possible the offending obstruction should be released and removed, yet there are many instances in which the patient's condition prohibits such a formidable undertaking.

Herein lies a fertile field for enterostomy, for, by it, intestinal drainage can be established. As this drainage takes place the tension and toxemia lessen, the general condition improves, and as strength and vigor return, the patient has within a short time been transferred from an inoperable and almost hopeless state to an operable and hopeful one.

Enterostomy is a simple procedure, easily and quickly performed, under local anaesthesia, in the patient's room.

There are several different techniques or types of operation. These are of minor consideration. The chief aim in its use for the relief of obstruction is to get an opening into the lumen of the bowel through which the intestinal contents might escape. This was done in the early days by means of a trocar plunged through the abdominal wall into the intestine. Later on, as asepsis came into use, surgeons at different times have devised different methods of inserting a tube through the abdominal wall into the bowel.

Even yet, however, as Long states, but comparatively few appreciate the tremendous possibilities of this truly remarkable life-saving procedure.

In addition to its use for the relief of obstruction, it is of value as an avenue into the stomach (gastrostomy) when the esophagus is closed by stenosis or stricture, or as an entrance into the jejunum (jejunostomy) for the transference of nutrition should the pylorus be occluded.

The purpose of this paper, however, has to do more with enterostomy as an obstruction reliever than with it as a food chute to starving patients.

Intestinal obstruction is always a serious condition. It may be complete or incomplete. It has been defined as an obstruction to the onward movement of the bowel contents due to a mechanical block.

Strangulation obstruction is the most serious and rapidly fatal form. Obturation obstruction is less serious and less rapidly fatal. In this form of obstruction liquids and gases in varying quantities pass the obstructing point.

A patient with obturation obstruction may live for five, ten, or more days. Recently, we had one referred to us whose bowels had not moved for thirteen consecutive days, though he had passed small quantities of gas daily. He had an annular carcinoma of the lower sigmoid. Enterostomy afforded him prompt temporary relief.

Not infrequently foreign bodies cause obstruction. Of these, gall-stones are the most common. They lodge in the middle and lower ileum four times more frequently than they do in the duodenum and jejunum combined, or at the ileocecal valve.

Murphy states that foreign body ulceration tends to occur below the ileocecal valve rather than above it. He described a case of obstruction due to plum pudding which the patient had eaten many years previously. The pudding formed the nucleus of a large balllike mass, which had slowly increased in size by fecal deposit from time to time to the outer surface.

Early operation for mechanical obstruction is practically always successful. Delayed operation is practically always useless. It is more fatal than delay in any other abdominal condition except acute gastro-intestinal perforation into the free peritoneal cavity (Murphy).

For suspected obstruction in recently operated cases, it is our experience that, inasmuch as prompt recognition of this dreadful condition is extremely difficult and at times almost impossible, it is better to re-open and find no obstruction than to open too late and find complete obstruction with generalized peritonitis.

It is in this type of obstruction where the patient's general condition is already poor from recent laparotomy, that enterostomy is of especial practical and life-saving value.

Obviously, formidable laparotomy is again entirely out of the question. However, enterostomy under local anaesthesia performed in the patient's bed by opening the abdomen and pulling up into the wound the first loop of distended gut, putting a catheter into it, for the purpose of drainage, dropping the bowel back into the abdomen, and closing the ab-

*Read at the North and South Carolina Sectional Meeting of the American College of Surgeons, Winston-Salem, N. C., April 4-5, 1924.

dominal wall up to and around the tube, will cause practically no additional shock. It is well to stitch the omentum to the bowel around point where catheter enters.

Within a few hours the patient's pinched facial expression will lessen, the pulse will slow, the pain will cease, the distention will disappear, and the picture will change from one of extreme anguish to one of placid comfort.

Thus, the crisis will have been passed and ere long the patient's condition will permit a second laparotomy, if such be necessary, to release the obstructing point.

Truly, this is a life-saving procedure. Its results frequently are brilliant and so gratifying as to be favorably compared with the quick relief afforded by intubation operation for laryngeal diphtheria.

Recorded below are a few cases in brief:

Case No. A-582.—Female, aged forty. Subtotal abdominal hysterectomy, right salpingo-oophorectomy and appendectomy, for multiple uterine fibroids, right-sided suppurative tubo-ovarian disease with mass formation in right lower pelvis in which appendix was enmeshed. Right pelvis drained. Uninterrupted convalescence, discharged from hospital on sixteenth day.

Two months later she was seized with sudden severe abdominal cramps, followed shortly by vomiting. Was seen the following day by a physician. She refused operation until the fifth day, at which time enterostomy was performed. She died two days later. Autopsy revealed intestinal perforation at site of obstruction and generalized peritonitis. This was a case of delayed obstruction coming to operation. She procrastinated too long.

Case No. A-710.—Female, aged forty. Bilateral salpingectomy and appendectomy for bilateral hydrosalpinx and fibrous appendix. Smooth convalescence until the afternoon of the seventh day, when she developed sudden severe epigastric pain, followed in forty minutes by complete collapse.

She reacted to stimulation within two hours. During the night and early forenoon of following day mild paroxysms of pain recurred. That afternoon severe pains again set in. The old scar was re-opened, and a complete obstruction with much bloody fluid was present in the abdomen. The obstruction was released and where it had been attached to the under surface of right broad ligament the wall of bowel was almost necrotic. Enterostomy was performed at this weakened spot. She made a prompt and uninterrupted convalescence.

Case No. A-1954.—Femal, aged fifty. Total abdominal hysterectomy, October 10, 1922. Uninterrupted convalescence. Eight days after leaving the hospital she developed cramping epigastric pains, followed by nausea and vomiting. This continued off and on with varying degree of severity for three days when she was re-admitted to the hospital, her condition being grave. Enterostomy was performed. She rapidly improved and later laparotomy was done in order to release the obstruction. She stood the operation well and recovered. Enterostomy turned an inoperable into an operable state.

Case No. A-2448.—Child, age, nine years. Acute gangrenous appendix. Three days after operation child was not doing well. He was distended and hiccoughing. His pulse was quickening, and he was complaining at intervals of sharp pains. Obstruction was suspected. Following day his condition remained unimproved. Under novocaine anaesthesia, right inguinal enterostomy was performed. The ileum was found to be greatly distended and purplish in color. Intestinal drainage promptly set in and from then on recovery was without incident.

Case No. A-2633.—Female, aged twenty-three. Operated on July 20, 1923, for right-sided ectopic pregnancy. A mass the size of a grape fruit was found, consisting of a tubal pregnancy, the ovary and the appendix. The patient was drained as there was some mucopurulent material in the necrotic ovary and its mass. Operator's note: convalescence to be stormy, patient quite sick.

On the following day she was greatly distended in the forenoon with intermittent hiccough. That afternoon she developed intestinal cramps, and began to vomit. Her pulse was accelerated, and capillary cyanosis was detected. The following morning she was having rather severe pains for which morphia was required. She was truly a sick woman.

Enterostomy was resorted to as a last and desperate effort. Drainage began almost at once. The tube came out on the fourth day, the intestinal drainage ceased three days later, and the patient recovered.

Case No. A-3078.—Female, aged twenty-two, Appendectomy performed elsewhere in January, 1923. In March, 1923, was in bed two

days with severe upper abdominal cramps and vomiting. Treated for gall-stone colic. In September, 1923, same thing recurred. On the afternoon of November 10, 1923, when about seven and one-half months pregnant, she was seized with generalized and agonizing cramp-like pains throughout abdomen. Soon thereafter, vomiting began. Bowels moved twice within two hours; afterwards nothing came through. Enemas gave no relief. The uterus was not contracting, the cervix not dilating, the white blood count was 12,200, polys eight-six per cent. Four hours later she was still suffering great pain, notwithstanding two injections of morphia, one-quarter grain each, at short intervals.

The following morning she was transferred to the hospital where laparotomy revealed a seven and one-half months pregnant uterus and a markedly distended and discolored ileum. There were multiple points of obstruction, some caused by a definite rope-like band crossing the bowel, some by lateral intestinal adhesions, some by attachment of one or more loops of ileum to the under surface of the abdominal wall scar, and some by intestinal adhesion to the under surface of the uterus itself.

The operation was both long and difficult. At the beginning of the operation her condition was good; at the close of the operation there were many points of raw surface on the intestine, and the patient's general condition was poor. Enterostomy was performed high up in the ileum.

On the fourth day the patient aborted, and on the sixth day the tube was removed. On the eleventh day intestinal drainage ceased and the patient made an otherwise uneventful recovery.

In conclusion, please note that we have but referred in the briefest terms to the use of enterostomy as a means through which food can be put into the alimentary canal, and, also, that as regards its use in intestinal resection, we have made no mention whatsoever. Here, it is also of inestimable value, at times, when used just proximal to the suture line to lessen distention and suture tension by carrying away the gases, thus minimizing the danger of leakage along the suture line.

We cannot refrain from repeating that, when and wherever used for the relief of intestinal obstruction, it should be used early after the symptoms first announce the obstruction in order to get the maximum benefit.

When we learn to early diagnosticate post-operative obstruction, then the mortality of abdominal surgery will be lessened. There is hardly an excuse for a post-operative obstructive death, as it can usually be relieved by prompt recognition and early recourse on the part of the surgeon to enterostomy operation.

Mary Black Clinic.

SOME ACQUIRED CHARACTERS.

By CASPER L. REDFIELD, Chicago, Ill.

A character is primarily a sign or mark. A letter of the alphabet is a character, and an inscription consists of a series of characters.

To acquire means to obtain by effort or by purchase and *to inherit* means to receive from an ancestor or predecessor. If you dig up or buy a tablet containing some ancient inscription, you will acquire some characters. When you die, your heir will inherit that tablet, and there will be an indisputable case of the inheritance of acquired characters.

The word "biology" comes from a Greek word meaning life. A biological character means some characteristic peculiar to life as such, and not some characteristic of a physical body. A biological acquirement is some addition, modification or qualification of the thing we know as life, and not some change in some physical body. And biological inheritance means an inheritance of life qualities and not a legal inheritance.

A child gets the measles. In due time he recovers, and is thereafter immune to further attack of the measles. The fact that he got the measles in the first instance is evidence that, at that time, he did not have the power necessary to resist the attack. The fact that he is immune after recovery shows he now has a power of resistance which he did not have before. That new power is an acquired character.

Measles is presumed to be caused by some parasite which we may assume to be some bacterium. The course of the measles is such that it can be shown that the disease cannot be produced by any thing other than some living organism which multiplies by reproduction. As a dead body is quickly destroyed by bacteria which do not harm it when alive, it will be evident that this new resistance to measles is a characteristic of life and not a characteristic of any bodily structure. It is, therefore, a biological character biologically acquired.

Referring back to our first example, the

characters on the tablet are not characteristics of life as such. They are non-biological things. As they can be obtained by the legal process of purchase, they can be obtained in a non-biological way. As they are conveyed from one person to another in a legal way, that way is also non-biological. In other words, we may have inheritance of acquired characters in which every element of the combination is non-biological.

Referring now to the acquired resistance to measles, we have a biological character biologically acquired. If this resistance is transmitted to offspring, then we have the inheritance of acquired characters, every element of which will be biological. That such acquired resistance is, in fact, inherited by offspring may be seen by reference to the history of measles. The white child, whose parents and earlier ancestors acquired resistance to measles by having that disease, does not have enough resistance to be wholly immune, but he does have enough so that the disease is not serious to him. But when measles is carried to people whose parents did not have it, then the disease is very deadly. The physician who has a case of measles on his hands should inquire if the parents had had that disease.

There are two kinds of characters, one kind is biological and the other is non-biological. There are two ways in which things are acquired, one way is biological and the other is non-biological. And there are two kinds of inheritance, biological and non-biological.

The inheritance of acquired characters is a composite made up of three factors. If all three of the factors are biological, it works, as in the inheritance of acquired resistance to disease. Also, it works if all three of the factors are non-biological, as in the legal inheritance of characters inscribed on a tablet. But an incongruous composite of the biological and the non-biological will not work. Thus, the characters inscribed on a tablet cannot be transmitted through the germ from father to son, and a person cannot inherit resistance to disease by a legal process.

For many years we have been told that acquired characters are not inherited, but when we examine the cases cited to prove that point, we find that they all consist of mixtures of the biological with the non-biological. For example, Weismann cut off the tails of mice and then bred those mice. He then cut the tails from the progeny and bred them to get a third generation, and so on for many generations. The last generation had tails just as long as those on the first one. As this is cited, even up to the present day, as evidence that acquired characters are not inherited, we will give a little time to considering it.

When the tail is removed from a mouse, that mouse is in a tailless condition. But as tailessness is just as observable in a dead mouse as in a live one, it is evident that taillessness is not a characteristic of life as such, and consequently it is not a biological character. The inheritance under consideration is biological inheritance. Weismann's experiment showed no more than that some non-biological thing is not biologically inherited.

When Weismann cut off the tail of a mouse there was produced a wound which later healed. The removal of the tail was a non-biological operation of the environment, as is evident from the fact that it might be by any mechanical means. But the wound was not healed by the environment, and will not be healed in any mouse which is dead at the time the tail is removed. The wound healing was an operation carried out by the life in the mouse, and consequently was strictly biological.

When Weismann cut off the tails of the first generation of mice, the wounds healed and he bred those mice to get a second generation. Again he removed the tails, and after the wounds healed he bred the second generation to get a third generation, and so on for many generations. Now it happens that the wound healing was the only biological thing having anything to do with Weismann's tail-cutting experiments, and he did not tell us about the biological problem in front of him. Neither have any of Weismann's followers investigated the biological problem involved. We have not yet been told whether the wounds healed more readily in the later generations than in the earlier ones.

Right here I want to draw a distinction between a biological character and a biological product. A biological character is a characteristic of life itself. A biological product is something produced by the operations of life. A cow can produce milk. That is, she can produce milk if she is alive, but not if she is dead. As a consequence, the power of producing milk is a biological character, but the milk itself is a biological product. There is a clear distinction between milk and the power

of producing milk. They are not in the same class of things.

The tail of a mouse is a biological product and not a biological character. And the character of a tail is a character of a product and not a biological character. The thing which passes by heredity through the germ of a mouse is the power of producing a tail, and not the tail itself or any character of the tail. Taking away the tail of a mouse after it has been produced is not taking away the power of producing a tail, any more than taking milk from a cow is taking away the power of producing milk.

Broadening the statement just made, we may say that no action of the environment on a living body will, of itself, produce the slightest effect on the inheritable power of growth which originally produced the body. The utmost that any action of the environment can do is to induce a biological activity which in turn may modify a biological character, but it will be the activity and not the environment which will produce the result. Thus, if we amputate an organ which will regenerate, and keep repeating the operation after each regeneration, the animal's powers of regeneration will be increased by exercising them, and that increased power of regeneration will be transmitted to offspring. Kammerer demonstrated this by cutting off the siphons of sea squirts. In regenerating, those siphons grew to be a little longer than before, and by repeated regenerations they became of great length. When those animals were bred, the offspring had long siphons like their parents. What those offspring inherited was increased power of siphon growing.

One of the things advanced to show that acquired characters are not inherited is the fact that children talk the language of those with whom they are brought up, and not the language of their ancestors, when the two languages are not the same. But this is another example of confusing the biological with the non-biological. There is a fundamental difference between the power of learning and the thing learned. The power of learning is characteristic only of living things, and consequently is strictly biological. A dead man cannot learn anything in spite of the fact that his body is a biological product. The thing learned is not a characteristic of life, and consequently it is non-biological.

Mr. Reich, of Bremen, Germany, a bird breeder, keeps a great variety of cage birds, among which are canaries and nightingales. He wanted to get canaries which would sing the nightingale song, so he put successive generations of canaries under nightingale tutors. In about five years he had canaries which would sing the full nightingale song, and in about five years more he got canaries which sang the nightingale song without instruction.

This looks like a case of the inheritance of something learned and remembered, but that is not what really happened. A bird's song consists of a few notes repeated over and over many times a day for years together. Such continued repetition of the same thing develops the power of doing that particular thing at the expense of other powers. Powers are characteristic of life, and consequently are biological and can be biologically inherited. After Reich's canaries had practiced for ten years on one song, when his young birds opened their mouths to sing, they sang the song for which they had developed their powers.

Smallpox is one of those diseases for which a person acquires immunity by having it, the same as he acquires immunity against measles by having it. Cowpox is known to be a weak form of smallpox. Vaccination is based on the principle that if a person exercises in a particular way he develops powers in that way. When a person is vaccinated he is given a very mild case of smallpox, and in fighting this mild case he develops powers of resisting small attacks of fully virulent smallpox.

But powers which are not exercised gradually decline. If an attempt be made to vaccinate a person soon after he has been vaccinated successfully, it will be found that the second vaccination will not take. But let ten or more years go by, and he can be vaccinated again. The immunity which he had acquired declined very much in the years during which he was not acting to resist vaccine virus.

About one hundred years ago vaccination became general in Europe and America, and the majority of us are descended from two or three generations of vaccinated ancestors. At the present time, smallpox is not nearly the serious disease it was a hundred years ago. Somehow, there has got into the white race a degree of resistance to smallpox which did not exist before, and the only way resistance can be obtained is by fighting the virus itself. We have it by reason of the fact that our ancestors were vaccinated.

XUM

A person who lives where other people live is being continually "vaccinated" against various diseases by coming into contact with small numbers of pathogenic germs. Usually he does not know of the contact, because his powers of resistance are fully able to take care of the case without giving a distress signal. Occasionally, the attack is heavy enough to make him feel indisposed for a few days, and more rarely he calls on a physician for help.

Tuberculosis is one of those diseases which a person is certain to meet if he spends any time in a modern city. Autopsies disclose the fact that about ninety per cent of those adults who die from other causes, have, at one time or another, been attacked by tuberculosis and have recovered without being aware of such attack. Under such conditions, it is obvious that the older a person is, the greater is the probability that he has been attacked by tuberculosis and recovered, and in recovery has developed resistance to that disease.

At Frodsham, England, there is a sanitarium at which investigation was made into the family relationship of 381 tuberculous patients. It was learned whether each patient was a first, second or later child, and it was also learned how many other children there were in the families from which these tuberculous patients came. Thus there was laid a foundation for determining which children of the family are least resistant and which are most resistant to tuberculosis. The results show that the older the parents are when their children are born, the greater is the resistance of those children to tuberculosis. The first child is more than twice as liable as the third and fourth children, and more than three times as liable as the eighth and later children of the same parents. Clearly, if the parents get tuberculosis and recover, the offspring inherit the resistance the parents acquired.

When a physician has a tuberculous patient he should inquire not only in regard to the history of the parents of the patient, but also as to the age of the parents when the child was conceived. Because persons get tuberculosis and recover without being aware of the attack, information as to the age of the parents is not conclusive of anything, but it helps in determining probabilities.

The physician need not stop at tuberculosis, measles and vaccination. Acquiring resistance to disease by fighting it is very common, and resistance acquired in this way is inherited by offspring. The extent to which acquired resistance is inherited is determined by the magnitude of the acquirement and the length of time which has elapsed since the acquirement terminated. By having smallpox a person acquires an immunity great enough to last a life time. By vaccination he acquires an immunity which lasts for a few years only. In the case of a child with the measles, the questions are: Did the parents have measles? How long ago was it? How severe were the attacks? Putting the answers to these questions with other information will help in prognosis.

1542 *Monadnock Block.*

The Truth About Medicine

In addition to the articles enumerated in our letter of January 31, 1925, the following have been accepted::

H. K. Mulford,
Tuberculin Intracutaneous (Human Type)—Mulford.
Parke, Davis & Co.
Mercurosal Ampoules.
E. R. Squibb & Sons
Squibb's Liquid Petrolatum with Agar.

NEW AND NON-OFFICIAL REMEDIES

Antimony Thioglycollamide.—The triamide of antimony thioglycollic acid. It contains not less than 30 per cent of antimony. Antimony thioglycollam'de and antimony sodium thioglycollate have been tested on rats, rabbits and dogs inoculated with trypanosomiasis by Rowntree and Abel. These workers suggested the employment of these antimony compounds in the treatment of human trypanosomiasis and the larger animals. Randall has used both of these antimony compounds intravenously and intramuscularly in granuloma inguinale with marked success. In the doses employed they were less toxic than tartar emetic and the results were more favorable From the available evidence the experimental use of these compounds in kala azar would seem to be justifiable. Hynson, Westcott & Dunning, Baltimore. (Jour. A. M. A., Feb. 7, 1925, p. 441.)

Cinchophen—B. P. C.—A brand of cinchophen—N. N R. For a discussion of the actions, uses and dosage, see New and Non-official Remedies, 1924, p. 93 Benzol Products Co., Newark, N. J.

Hoyt's Protein Cereal.—Hoyt's special gluten flour (New and Non-official Remedies, 1924, p. 195) cooked and made into flakes. Pure Gluten Food Company, Brooklyn, N. Y.

Mercurettes—P. D. and Co.—Briquettes each containing finely divided metallic mercury 3.25 Gm. (5 grains) incorporated with theobroma (cacao butter) and perfumed. The actions and uses of mercurettes are the same as those of ointment of mercury U. S. P. It is claimed that in the treatment of syphilis and certain forms of parasitic skin disease where ointment of mercury has been employed, the use of mercurettes permits a more accurate dosage and is more convenient and less disagreeable. Parke, Davis and Co., Detroit.

Tablets Iodo-Casein with Chocolate.—Each tablet contains iodo-casein (New and Non-official Remedies.

1924, p. 156), equivalent to 0.01 Gm. iodin. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., Feb. 28, 1925, p. 675).

PROPAGANDA FOR REFORM.

Barbital and Unessential Modifications.—The British Medical Journal discusses the multiplicity of barbituric acid hypnotics which English physicians are importuned to prescribe. In America a similar condition exists. The numerous barbital derivatives and mixtures of these with other drugs result from the fact that we have no satisfactory method of evaluating the hypnotics. Apparently the proprietary interests have taken advantage of this situation, so that the proponents of these barbital derivatives claim various specific advantages for them. British physicians complain of the many market names for substances which have practically the same action, yet with no indication of their derivation from the original and best known drug, barbital. In this country, the Council on Pharmacy and Chemistry provides information concerning the composition and actions of just such products. Until scientific investigators have devised a satisfactory evaluation of this class of hypnotics, it would be much more in keeping with scientific advancement were proprietary houses to refrain from putting out new derivatives, and physicians to limit their prescriptions to the two drugs, barbital and phenobarbital—the only barbital preparations which have been accepted for New and Non-official Remedies. The danger to the public of the use of barbital hypnotics is of growing concern. Barbital itself, has been the cause of many accidental deaths, and its use is not free from addiction. In England, barbital is included in the poison schedule and further restrictions of its sale is now being considered there. (Jour. A. M. A., Feb. 7, 1925, p. 445).

Endocrinology and the Mammary Gland.—Adverse reports have recently been published in regard to the alleged functions of preparations of the mammary gland. A survey of the literature might lead one to believe that the activity of this structure is in some way related to the menstrual function and that the gland exerts an inhibitory effect on the ovary. Yet carefully controlled administration of mammary gland substance, by Charlton and Rickey, to women of reproductive age has failed to furnish evidence of constant effects, if any, on ovarian activity in persons with normal or abnormal menstrual histories. The possible influence of mammary substance on the estrual cycle of animals has also been studied. The results were entirely negative. In no instance was any effect from feeding mammary gland apparent. The facts at hand fortify the position of the Council on Pharmacy and Chemistry to omit mammary gland preparations from New and Non-official Remedies, because there is no clear-cut evidence to show that administration of available products is of value. (Jour. A. M. A., Feb. 7, 1925, p. 443).

The Mollgaard Method in Tuberculosis.—The recently published book by Mollgaard and his collaborators on the new gold treatment of tuberculosis, gives the properties of "Sanocrysin," which is sodium aurothiosulphate, and the animal experiments which have been carried out. The serum from calves previously injected with killed tubercle bacilli and tuberculin, which is used in connection with the gold salt, is regarded as an antitoxic serum that neutralizes toxins liberated in the tuberculous animal by the action of the drug. Tests are reported on the effects of "Sanocrysin" and serum in calves injected intravenously with bovine tubercle bacilli The results are said to be favorable, but the evidence is not convincing. The clinical reports in the book reveal that the treatment is of no value in miliary tuberculosis or in tuberculosis leptomeningitis and that in advanced and serious cases of pulmonary tuberculosis the treatment is perilous and offers "only a slight chance of recovery." It remains to be determined whether any better results can be obtained with the Sanocrysin-serum treatment than without it. There does not appear to be any reason for imagining that the particular gold salt used by Mollgaard can have any different effect than the other gold salts which have been investigated in the past and abandoned. At present there is no justification for rushing into the treatment of tuberculosis with this drug. (Jour. A. M. A., Feb. 14, 1925, p. 516).

Yadil Blows Up.—Yadil was supposed to be an esoteric form of garlic. It was heavily advertised throughout the British Isles and to a small extent in the United States. Then came a bomb in the form of an exposure of Yadil, published in a London paper. It was a report of an analysis by an eminent chemist which declared Yadil to consist of 1 part formaldehyde, 4 parts glycerin, 95 parts of water and a smell. A second report was from a well known pharmacologist. There were three results from the explosion. The first and most important was that the sale of Yadil almost ceased. The second was an action for libel by the Yadil concern against the newspaper and the scientists. The third was the application by the "patent medicine" concern to prohibit further publications. The injunction was refused. Now the Yadil concern is in bankruptcy and its action for libel has been dismissed by the court. (Jour. A. M. A., Feb. 14, 1925, p. 520).

Felsol.—In the advertising of the American Felsol Co., Felsol is claimed to have the following composition: "Metozin 0.9 (containing Phenason 0.25, Anilipyrin 0.4, Jodopyrin 0.25), caffein 0.1, digitalis and strophanthus glycosides 0.0015 and the alkaloid of lobelia inflata 0.005." Felsol is a typical illustration of an irrational shotgun mixture. One of the claimed ingredients, metozin, is stated to contain phenazon (antipyrin), anilipyrin (a mixture of antipyrin and acetanilid), and iodopyrin (a compound of antipyrin and iodin). In addition to these multiple antipyretic ingredients, the product is claimed to contain four other active drugs. According to the circular, Felsol "gives the busy physician a handy, convenient and harmless remedy which may be given for any kind of bronchial or cardiac asthma, without the necessity on the part of the physician to embark on long theoretical considerations as to the underlying cause of the attack." A product that contains preparations of digitalis, strophanthus and lobelia is not a "harmless" remedy. The recommendation for the indiscriminate use of this product is to be strongly condemned. (Jour. A. M. A., Feb. 14, 1925, p. 536).

Viriligen, Glandular Comp. and Pineal Comp. Not Accepted for N. N. R.—Viriligen (G. W. Carnrick Co.), is marketed in tablets, capsules and ampules, each of which is stated to contain "desiccated extracts of anterior pituitary, suprarenal cortex, lymph, brain and spinal cord substance, testis and 1/10 gr. thyroid." It is claimed that the preparation is "indicated in lowered virility and sexual neurasthenia of functional origin." There is no evidence that extracts of the anterior portion of the pituitary, suprarenal cortex, lymph, brain, spinal cord and testis have any therapeutic value in sexual neuras-

thenia or lowered virility (sexual capacity?). The Council on Pharmacy and Chemistry found Viriligen inadmissible to New and Nonofficial Remedies, because (1) its composition is indefinite; (2) the therapeutic claims are unwarranted, and (3) it is an unscientific mixture.

Glandular Comp. (Male) Special Formula No. 1 (G. W. Carnrick Co.), comes in tablets and capsules which are stated to contain "Thyroid" 1/10 gr., "Pituitary" 1/40 gr., "Suprarenal" 1/4 gr., "Orchic" 1/4 gr., "Physiological Salts Comp." 1/4 gr.

Glandular Comp. (Female) Special Formula No. 2 (G. W. Carnrick Co.), comes in tablets and capsules claimed to contain "Thyroid" 1/10 gr., "Pituitary," 1/40 gr., "Suprarenal," 1/4 gr., "Ovarian," 1/4 gr., "Physiological Salts Comp." 1/4 gr.

Pineal Comp (Male), Special Formula No. 3 (G. W. Carnrick Co.), comes in tablets and capsules said to contain "Anterior Pituitary" 1/5 gr., "Thyroid" 1/8 gr., "Suprarenal" 1 gr., "Orchic 1-1/2 gr., "Pineal" 1/30 gr., "Physiological Salts Comp,", 1/4 gr.

Pineal Comp. (Female). Special Formula No. 4. (G. W. Carnrick Co.), comes in tablets and capsules said to contain "Anterior Pituitary" 1/5 gr., "Thyroid" 1/8 gr., "Suprarenal" 1 gr., "Ovarian" 1-1/2 gr., "Pineal" 1/30 gr., "Physiological Salts Comp." 1/4 gr.

The Council on Pharmacy and Chemistry found these preparations inadmissible to New and Nonofficial Remedies because (1) they are unscientific mixtures, (2) their composition is indefinite and (3) the therapeutic claims are unwarranted. (Jour. A. M. A., Feb. 28, 1925, p. 695).

"Organ-O-Tones."—From the advertising, it appears that the Cole Chemical Co. is engaged in the marketing of "shotgun" mixtures, largely of the "pluriglandular" type. For a year or more it has been "pushing" a mixture "for obesity," designated "Organ-O-Tones No. 19." The preparation is marketed in capsules which have been stated to contain: "Thyroid Substance," 1/2 gr., "Pituitary (whole)" 1/4 gr., "Phytolaccin" 1/2 gr., "Apocynum (P. E.)" 1/4 gr.,' "Organ-O-Tones No. 12" (composed of sodium bicarbonate, potassium bicarbonate, calcium glycero-phosphate, calcium phosphate (dibasic) and Magnesium Phosphate), 3-1/2 grs. It is evident that Organ-O-Tones No. 19, for Obesity, is an irrational mixture which depends for its action as an "obesity" remedy on the thyroid which it contains. The firm's advertising does not stress the formula and hence it is probable that those who use this preparation do so without full appreciation that they are administering thyroid. More than sixteen years ago Reid Hunt and Atherton Seidell called attention to the misuse of thyroid as an ingredient of "antifat" nostrums. Since then the ill effects of thyroid as an antifat have become well established. Recently H. S. Plummer and Wm. Boothby warned against the uncontrolled use of thyroid in obesity. (Jour. A. M. A., Feb. 28, 1925, p. 698).

Eucain.—Originally, two kinds of "eucain" were on the market, namely, "alpha eucain" and "beta eucain." The use of the first product has been generally abandoned. The second product is official in the U. S. Pharmacopoeia in the form of hydrochlorid (betaeucain hydrochlorid). Betaeucain hydrochlorid is a local anesthetic like cocain, but weaker and devoid of the stimulating properties of the latter. It does not dilate the pupil, nor does it contract the blood vessels as does cocain. (Jour. A. M. A., Feb. 28, 1925, p. 698).

Butyn and Epinephrin.—As a result of animal experiments recently reported by Hirschfelder, Backer and Jennison, "the addition of epinephrin to solutions of cocain and saligenin increases their tendency to cause local edema. This is not the case with procain and butyn." According to New and Non-official Remedies, 1924, the use of butyn for injection anesthesia or for special anesthesia does not appear promising, since its toxicity is materially greater than that of cocain. Butyn is a substitute for cocain in surface anesthesia, as for the eye, nose and throat; it acts through intact mucosa almost as effectively as cocain; solutions of butyn are non-irritant. (Jour. A. M. A., Feb. 28, 1925, p. 699).

The Dick Test.—The U. S. Treasury Department has not authorized the interstate sale of any Dick scarlet fever preparation. The Council on Pharmacy and Chemistry does not accept biologic products until they are licensed by the Treasury Department, and therefore has not considered the Dick scarlet fever preparation. (Jour. A. M. A., Feb. 28, 1925, p. 699).

Book Announcements

Operative Surgery. By J. SHELTON HORSLEY, M. D., F. A. C. S., Attending Surgeon, St. Elizabeth's Hospital. Illustrated by MISS HELEN LORRAINE. Second Edition. St. Louis. The C. V. Mosby Company. 1924. 8vo. 784 pages with 666 original illustrations. Cloth. Price, $12.50.

The reception accorded the first edition of Horsley's Operative Surgery was so gratifying that the author felt the necessity of publishing a second edition to include the latest and most up-to-date methods employed in operative surgery. Surgery is keeping apace with the times in making changes and improvements, and Dr. Horsley describes a number of new operations in the present volume. The technic employed in many cases is so excellently portrayed by original drawings, that one may almost imagine he is seeing the operations in the clinic.

To one acquainted with Dr. Horsley's ability as a surgeon and author, it is only necessary for us to announce the publication of this second and enlarged edition.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1924. Cloth. Price, postpaid, $1.00. P. 82. Chicago: American Medical Association. 1925.

This volume contains the reports of the Council on Pharmacy and Chemistry that have been adopted and authorized for publication during 1924. Some of these reports have appeared in *The Journal of the American Medical Association*. Others are now published for the first time.

The annual volumes of the "Council Reports" may be looked on as the companion volumes to New and Nonofficial Remedies.

While the latter contains the medicinal preparations that are found acceptable, the reports contain the reasons why certain products were not accepted.

The volume also contains reports on products which were included in former editions of New and Nonofficial Remedies but which will not appear in the 1925 edition because they were found ineligible for further recognition.

The volume contains a number of reports of a general nature: for instance, a report on the therapeutic value of benzyl benzoate; a report on anaphylaxis produced by thromboplastic substances and a report on the therapeutic use of digitalis.

Physicians who keep fully informed in regard to the value of proprietary remedies will wish to own this book.

An African Holiday. By RICHARD L. SUTTON, M. D., LL.D., Fellow of the Royal Geographical Society of Great Britain. St. Louis. The C. V. Mosby Company. 1924. 8vo. 180 pages with 102 original illustrations. Cloth. Price, $2.25.

Infection, Immunity and Inflammation. A Study of the Phenomena of Hypersensitiveness and Tolerance, and Their Relationship to the Clinical Study, Prophylaxis, and Treatment of Disease. By FRASER B. GURD, M. D., C. M., F. A. C. S., Montreal. Lecturer in Applied Immunology and in Surgery, McGill University; Associate Surgeon, Montreal General Hospital, etc. St. Louis. The C. V. Mosby Company. 1924. 8vo. 329 pages. Cloth. Price, $5.00.

Surgical Pathology. By WILLIAM BOYD, M. D., M. R. C. P. Ed., F. R. S. C., Professor of Pathology, University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. 8vo. of 837 pages with 349 illustrations and 13 colored plates. Philadelphia and London. W. B. Saunders Company. 1925. Cloth, $10.00 net.

The Crippled Hand and Arm. A Monograph on the Various Types of Deformities of the Hand and Arm as a Result from Abnormal Development, Injuries and Disease, for the Use of the Practitioner and Surgeon. By CARL BECK, M. D. Philadelphia and London. J. B. Lippincott Company. 1925. 8vo. 243 pages with 302 illustrations. Cloth. Price, $7.00.

The Diagnosis of Children's Diseases. With Special Attention to the Diseases of Infancy. By PROFESSOR DR. E. FEER, Director of the University Children's Clinic, Zurich, Switzerland. Translated by CARL AHRENDT SCHERER, M. D., F. A. C. P. Philadelphia, London, Montreal. J. B. Lippincott Company. 1925. 8vo. 551 pages, profusely illustrated. Cloth. Price, $7.00.

Fractures and Dislocations. Immediate Management, After-Cure, and Convalescent Treatment with Special Reference to the Conservation and Restoration of Function. By PHILIP D. WILSON, M. D., F. A. C. S., Instructor in Orthopedic Surgeory, Harvard Medical School, and WILLIAM A. COCHRANE, M. B., Ch. B, F. R. C. S., Edin, University Tutor in Clinical Surgery, University of Edinburgh. Philadelphia and London. J. B. Lippincott Company. 1925. 8vo. 789 pages with 978 illustrations. Cloth. Price, $10.00.

A Text-Book of Physiology for Medical Students and Physicians. By WILLIAM H. HOWELL, Ph. D., M. D., Professor of Physiology in the School of Hygiene and Public Health, Johns Hopkins University, Baltimore. Ninth Edition, thoroughly revised. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 1069 pages, 308 illustrations. Cloth. Price, $6.50 net.

A Compend of Genito-Urinary Diseases and Syphilis, including their Surgery and Treatment. By CHARLES S. HIRSCH, M. D., Urologist to the Jewish Hospital, Mt. Sinai Hospital, etc., Philadelphia. Fourth Edition, revised. Philadelphia. P. Blakiston's Son and Company. 1012 Walnut Street. 1925. 12mo. XVI—337 pages, with 44 illustrations. Cloth. Price, $2.00.

Proceedings of the International Conference on Health Problems in Tropical America. Held at Kingston, Jamaica, B. W. I., July 22 to August 1, 1924, by invitation of the Medical Department of the United Fruit Company. Published by United Fruit Company, Boston, Massachusetts. 1924. Cloth. 8vo. XXI—1010 pages.

The Technic of Local Anesthesia. By ARTHUR E. HERTZLER, M. D., F. A. C. S., Professor of Surgery in the University of Kansas; Surgeon to St. Luke's Hospital and St. Mary's Hospital, Kansas City, Mo., etc. Third Edition. St. Louis. The C. V. Mosby Company. 1925. 8vo. 272 pages with 140 illustrations. Cloth. Price, $5.50.

The Physiology of Mind. An Interpretation Based on Biological, Morphological, Physical and Chemical Considerations. By FRANCIS X. DERCUM, M. D., Ph.D., Professor of Nervous and Mental Diseases in Jefferson Medical College, Philadelphia. Second Edition, Reset. Philadelphia and London. W. B Saunders Company. 1925. 12mo. of 287 pages. Cloth, $3.50 net.

Principles of Surgery for Nurses. By M. S. WOOLF, M. A., B. Sc., M. R. C. S. (Eng.), L. R. C. P. (London), Instructor in Surgery, University of California Hospital, San Francisco. Philadelphia and London. W. B. Saunders Company. 1925. 12mo. of 350 pages, illustrated. Cloth, $3.00 net.

Serum Diagnosis of Syphilis by Precipitation. Governing Principles, Procedure and Clinical Application of the Kahn Precipitation Test. By R. L. KAHN, M. S., D. Sc., Immunologist, Bureau of Laboratories, Michigan Department of Health. Baltimore. Williams and Wilkins Company. 1925. Octavo. 237 pages. Cloth. Price, $3.00.

Pediatrics. By Various Authors. Edited by ISAAC A. ABT, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Set complete in eight octavo volumes totaling 8,000 pages with 1,500 illustrations, and separate Index Volume free. Now ready—VOLUME VI, containing 736 pages with 127 illustrations. Philadelphia and London. W. B. Saunders Company. 1925. Cloth, $10.00 per volume. Sold by subscription.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles in Medicine, Surgery and the Various Specialties. By Leading Members of the Medical Profession throughout the World. Edited by HENRY W. CATTELL, M. D., Philadelphia, and COLLABORATORS. VOLUME I. Thirty-fifth Series, 1925. Philadelphia and London. J. B. Lippincott Company. 1925. Octavo of 301 pages. Cloth.

XUM

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Editorial

Politics and Medicine.

Politics and medicine have been commonly assumed to be two things that, like oil and water, would not or should not mix. In general this is true, but with higher ideals for the medical profession and for the health of the people, a satisfactory and effective emulsion may be made. Naturally, the chief obligation is upon the individual doctor to hold up the best traditions of medicine in deed and in truth, and to practice the spirit of medical ethics rather than take refuge behind technicalities. In these modern days of apparently lowered morals it behooves each member of the medical profession to become a leader in his community, not only for hygienic measures, but for moral standards. A good citizen is a respecter of all laws. Unless a doctor leads the clean life he preaches, he resembles the rather contemptible politician who brazenly announces that he is politically dry but personally wet.

The contemptuous opinion concerning followers of Esculapius, held by many politicians and by some big business leaders, is naturally galling. If the follower is not a true Esculapian, but is one who desires "to seem" rather than "to be," who practices cults and who has no real human touch nor scientific curiosity, he is not of the type that the regular medical profession would like to consider representative.

A distressing spectacle, enacted before every election, is that of candidates for governorship and other elective offices soliciting votes and attempting to secure favor from the different classes of voters by every available means. Because doctors seem timid in asserting the views they know to be right their political influence has heretofore been regarded as practically negligible; but the medical men of the State of Virginia can, if they will, control any political office within the gift of the State. Such power, if exerted properly, would be the greatest asset to Virginia. The candidates begin months before the election to send out letters or propaganda. When the doctors are favored with such letters much emphasis is laid on the relatives or parents who have been doctors and upon what great respect the candidate has for the medical profession, though the letter may be singularly neglectful of his record in matters of public health and the maintenance of scientific standards for applicants to practice medicine.

Can any member of the regular medical profession (which of course does not mean "allopaths," because there is "no such animal," this term having been wished on regular doctors by the founder of homeopathy) approve of any measure that endorses a pseudo-scientific method, bounded by a creed? Is there anything more absurd to a man who has real knowledge of anatomy and physiology than the tenets of the osteopath, the chiropractor, or the Christian "scientist"?

It does not seem to be generally known that the Veterinary Board of Virginia is much more careful in protecting horses, cattle and hogs from unscientific medical treatment than is the Legislature in protecting the health of the people of Virginia. The Veterinary Board requires that any one who undertakes to practice veterinary medicine or surgery in Virginia shall have a minimum requirement of two years in college and a thorough education in the fundamental sciences of anatomy, physiology, chemistry, embryology, pharmacology and pathology. There is no exception to this rule by which practitioners of cults, such as chiropractors, osteopaths or Christian "scientists," may treat horses, cattle or sheep—but they are permitted by the Legislature to practice on human beings!

Let each doctor inform himself about the record and the present platform of every candidate for whom he expects to vote. It is of no concern whether the gentleman or the lady in question has near relatives who are doctors

or whether members of their family have been saved by the administrations of a regular medical doctor. It is also of no importance whether a candidate has voted for appropriations for the State Board of Health or for the Crippled Children's Hospital, which appeal to the sentiment of the public and are, of course, commendable. The vital thing is whether the candidate is willing, because of a lobby maintained by the chiropractors, osteopaths, Christian "scientists" and others, to support a bill that will impair the power of the State Medical Examining Board and so enable the governmental authorities to place in charge of the little patients in the Crippled Children's Hospital the followers of the abovementioned cults, who do not have the scientific education to permit them legally to practice on dogs.

Let each doctor ask the candidate for legislature or for governor whether he supported the miserable bill passed in the Legislature about five years ago, which enabled De Collard not only utterly to defy the requirements of the State Medical Examining Board as to his fundamental qualifications, but permitted him to found a school from which others of his kind would be brought forth. Ask the candidate if we would have a man of this kind treat a blooded bull of his, and then follow up the question with the query whether he thinks permitting such men to have a license to practice medicine without an official inquiry into their scientific qualifications does not work a far greater injury to the health and well-being of the people of the State of Virginia than his vote for appropriations for the Crippled Children's Hospital and for the Board of Health can possibly benefit.

Let us bring these matters out squarely and see where the people stand. It is a great opportunity for the members of the medical profession, as well as their privilege, to educate the people of Virginia along lines of sanitation and health. Many doctors would doubtless be much more prosperous and have more patients if there were no restrictions whatever on medical practice, because no regulation of medical practice means many cases of unnecessary sickness and injury. But that is not the point. We are not standing for the protection of the medical profession primarily, but for the protection of the health of the people of Virginia, which can only be done by upholding high standards of scientific medical education. A politician of sufficient education to appreciate the value of modern science cannot in good faith vote for the exploitation of the men and women in Virginia by the followers of cults. Let each doctor be in himself a public health educational bureau, and, discarding to some extent the ancient reserve, talk frankly to his patients about their troubles, describe briefly the anatomy, physiology and pathology concerned in the patient's complaints, and so give a basis of facts which will make impossible the sprouting of the seeds of error that the cults are busy in disseminating. Can any one with the correct conception of anatomy of the spine, for instance, regard as other than absurd the claims of the chiropractor, or can an intelligent layman with even a smattering of knowledge of anatomy of the nerves of sensation perceive the slightest foundation for the doctrine of Christian "science"? Can any one with a knowledge of physics and chemistry seriously consider the theories of Abrams and his followers? When the legislature and those in authority are willing to exempt men like De Collard from the requirements of the State Medical Board, they may go farther and, if they believe his merits are sufficient to demand special legislation for exemption, insist upon such men being placed in charge of the Crippled Children's Hospital or of other institutions where little children are treated for congenital and acquired deformities.

The fate of the health of the people of Virginia lies in the hands of the members of the regular medical profession. Every physician should explain to his patients matters concerning anatomy, physiology, pathology and therapeutics; and he should make a personal inquiry of the candidates soliciting his vote as to their past record and present views and attitude toward regular medicine.

The recent experience in Connecticut cannot be too strongly emphasized. The Legislature, against the earnest protest of the regular medical profession, created many different Boards by which numerous cults and many grades of medical practitioners were admitted to practice medicine. It was soon found, even by laymen, that the mortality for insignificant diseases and injuries was great. Then the people took the matter in their own hands and instituted a grand jury investigation, but not until there had been numerous deaths

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which seemed unnecessary. The *New York Times* commented upon this as follows:

"Connecticut's highly commendable campaign against quack doctors, and its reverberations in other states, almost warrant the hope that success might attend an immediate and earnest attempt to change the medical practice laws all through the country. And no laws need changing more. Thanks to the abysmal ignorance in medical matters which characterizes a majority in our legislative bodies, statute books show how well the quacks have been able to win confidence in the two delusions on the acceptance of which their legal right to do business must rest. The first of these is that nothing is 'medical practice' except the administration of drugs, and the second is that there are and must be 'schools' of medicine, each equally efficient and each entitled to bestow upon its representatives the title of doctor. * * *"

"In no State should there be more than one medical examining board, and that one alone should issue licenses to practice medicine. Its members would not belong to any 'school.' They would be men of real medical education themselves, able to distinguish between a real medical college and a diploma mill—between a real doctor and a quack. * * *"

"Not one of the men licensed by such a board would claim universal efficacy for any form of treatment. Whoever does that is instantly revealed as a quack, either ignorant or dishonest, and he is not any the less a quack because he can produce 'testimonials' from grateful patients, including the familiar legislator whose close relative was saved from the fast-approaching death by an 'irregular' after he, or more often she, had been given up by anywhere from one to a dozen 'regular' doctors."

"The number of people, otherwise intelligent, who thus can be deceived and with the best of intentions can deceive others as gullible as themselves is disgracefully and humiliatingly large."

J. Shelton Horsley, M. D.

Virginia Doctors and the Legislature.

The election of the members of the coming legislature will soon be held. Candidates throughout the State will soon present their claims for the votes of the people. The extreme importance of one phase of Virginia's needs is presented in an editorial, "Politics and Medicine," in this issue. What the writer has forcefully written is applicable to other and related questions of medicine and public welfare. One need hardly stress this point before Virginia doctors. The practical thing to do now is for Virginia doctors to "go into politics," at least for the next few months. This is urged upon physicians everywhere throughout the State.

Going into politics is not urged for the purpose of office seeking as such, but for the purpose of effecting the election of the highest type of legislators possible to represent Virginia in its law making body. No group of workers in the State knows more truly the needs of Virginia in matters touching upon the welfare of its people than do Virginia doctors. This is argument enough to convince one of the justification of the physician's turning aside for a time from his daily routine in order to take an active part in practical politics. Such action by Virginia doctors will redound to advancement of our State along lines much needed at this time.

A. G. B.

Corsidering Burns.

One of the most distressing of human afflictions is a severe burn. Pain, toxemia, expense, tedious illness or danger to life all play an important role in the consideration of large burns of the second and third degree. Many and varied have been the treatments given burns in the acute stages and include the application of ointments, solutions and exposure to air with subsequent skin grafts in selected cases.

Debridement, which consists of cutting away burned tissue down to healthy tissue, is advocated by A. M. Willis in the *Journal of the American Medical Association*, February 28, 1925, who reports most satisfactory results. This treatment is based upon animal experimentation reported in 1923 by Robertson and Boyd which tends to prove that Cannon and his co-workers were correct in believing that secondary traumatic shock is due to intoxication from absorption from protein cleavage products.

This method should be thoroughly tried out, for, if the results substantiate those of Willis, much suffering, expense and danger will be saved those who sustain severe burns.

B. R. T.

Southern Dietetics.

Recently is was asked, "Who is the authority on dietetics in the South?" and this question was found hard to answer. Many Southern men have made dietetic contributions in some one particular direction, but we know of no book or treatise on dietetics written by a Southern physician in recent years. Here is an important field for authoratative investigation and publication.

The recent advances in deficiency diseases and diabetes have brought the question of diet prominently to the front. Calorie feeding has become a matter of every day practice in these and certain other conditions and Dr. Ed. Wood, of Wilmington, has contributed much toward the understanding of the diet in sprue and allied conditions. In spite of all these advances there seems to be much misunderstanding and dubiousness as to the question of diet even in such well known conditions as gastric and duodenal ulcers. Looking over dietary lists initiated by Northern authorities, there are two criticisms. One is that many of the articles of food are expensive and beyond the reach of the poor people of the South; the other is that many of the articles are not obtainable in this section and foods which are commonly used in the South are not mentioned. For instance, one sees on the dietetic lists Brussells sprouts, artichokes, cress and many other articles not obtained in our markets, while no mention is made of foods usually used in this region, for instance, black eyed peas, roe herring and white meal corn bread.

The question of hot breads often arises and much has been said against them but not much scientific investigation has been done. The time is opportune for a broad and at the same time scientific discussion of the whole dietetic subject and to settle the question whether calorie diets and restricted diets are, or are not, too rigid and it is hoped that some Southern physician will answer these with an authoritative publication. The only suggestion we have to make is that he may bear in mind Shakespeare's injunction:

> "Let good digestion wait on appetite,
> Good health on both."

B. R. T.

News Notes

Our New Volume.

The VIRGINIA MEDICAL MONTHLY, with this issue, enters upon its fifty-second year of continuous publication. It is one of the oldest medical journals in this country and has always tried to maintain a high standard. With the co-operation of the members of our State Medical Society, by whom it is owned, we shall endeavor to keep it on a high plane and are ever desirous of using its pages in the furtherance of any matters pertaining to ethical medicine.

Let's make this fifty-second year of the journal the best yet!

Arrangements Being Made for Richmond Meeting, Medical Society of Virginia.

The Richmond Academy of Medicine recently met and appointed the following doctors as the executive committee in charge of arrangements for the Richmond meeting of the Medical Society of Virginia, October 13-16, 1925: Dr. Thomas D. Jones, chairman, and Drs. Garnett Nelson, E. H. Terrell, C. M. Miller, F. S. Johns, J. K. Hall, F. H. Hodges, Thos. W. Murrell, and Carrington Williams.

The following sub-committees and chairmen for same have been named:

RECEPTION AND AUTOMOBILES—Dr. Fred M. Hodges.

BADGES, PRINTING AND PUBLICITY — Dr. Thos. W. Murrell.

GOLF—Dr. E. H. Terrell.

FINANCE—Dr. Carrington Williams.

ENTERTAINMENT—Dr. Garnett Nelson.

SCIENTIFIC EXHIBITS—Dr. J. Shelton Horsley.

COMMERCIAL EXHIBITS, HOTELS AND MEETING HALLS—Dr. James K. Hall.

LADIES—To be appointed.

Members of the sub-committees will be announced later. Richmond doctors are anxious to have this a "big" meeting and want every member to attend. There will be no trouble in securing all accommodations necessary, and there is always plenty to be done in Richmond.

American Medical Association Meeting.

Official call has been issued for the seventy-sixth annual meeting or the American Medical Association to be held in Atlantic City, New Jersay, from Monday, May 25th to Friday, May 29th, 1925. The House of Delegates

will convene on the first day and the scientific assembly will open with the general meeting at 8:30 P. M. on the evening of the 26th. The various sections of the scientific assembly will meet Wednesday, the 27th, at 9 A. M. and 2 P. M. and subsequently according to their respective programs. Dr. William Allen Pusey, Chicago, is president, and Dr. Olin West, Chicago, secretary. Reduced railroad fares have been secured for the benefit of members and fellows of the Association and members of their families. In addition to the usual attractions offered by Atlantic City and attendance upon these meetings, the American Medical Golfiing Association will hold its eleventh annual tournament at Seaview Golf Club on May 25th.

Dr. Clarence L. Andrews, 1801 Pacific Avenue, Atlantic City, N. J., is chairman of the local committee of arrangements for this meeting.

Virginia Society of Oto-Laryngology and Ophthalmology.

The 1925 meeting of this society will be held at Winchester on Thursday, May 7th, under the presidency of Dr. James Morrison, of Lynchburg.

The invited guests are Dr. William Zentmayer, Philadelphia, Dr. James Babbitt, Philadelphia, and Dr. Harry Gradle, Chicago, all of whom will read papers before the society. The subject for the symposium is "Cataract" which will be led by Dr. Joseph A. White, Richmond and Dr. H. S. Hedges, Charlottesville. In addition, there will be a number of papers and case reports presented by members.

A luncheon will be tendered the members by Dr. Hunter McGuire at his residence, after which they will be taken on a drive through the Valley of Virginia. This presents a rare opportunity as the meeting will be during the famed Apple Blossom Festival.

The present membership consists of about seventy-five eye, ear, nose and throat specialists of Virginia. Membership is open to any specialist in good standing residing in the state. Communications should be addressed to Dr. E. U. Wallerstein, secretary, 114 N. Fifth St., Richmond, Va.

Dr. Russell Cecil Heads New York Alumni.

A permanent organization of all Medical College of Virginia and University College of Medicine alumni living in New York has been founded. Dr. Russell Cecil of the class of 1906 was elected president of the organization. Dr. Cecil is a native of Richmond, Va., and one of the many graduates of the Medical College of Virginia who has become distinguished in the field of medicine.

The American College of Surgeons, Va., W. Va., Md. and D. C. Section,

Held its annual meeting in Charleston, W. Va., March 20 and 21. Many interesting clinics were held and also hospital and health conferences. Dr. Allan Craig, of the American College of Surgeons, presided over the health conference at which lantern slides were shown. Dr. Craig, who was taken sick at this meeting, was able to leave the next day for his home. Invited guests were Drs. J. Garland Sherrill, of the University of Louisville, and Dr. George W. Crile, of Cleveland, who read most interesting papers. It was decided to hold the 1926 meeting in Winchester, Va., and Dr. W. H. Goodwin, University, was elected chairman and Dr. Paul W. Howle, Richmond, secretary of the Virginia Section.

Among the Virginia doctors noted at this meeting were Drs. P. W. Boyd and Hunter H. McGuire, Winchester: Southgate Leigh, Norfolk; Murat Willis, C. C. Coleman, W. L. Peple and Paul W. Howle, Richmond; W. H. Goodwin, University, and J. Coleman Motley, Abingdon.

The Virginia Surgeons Travel Club

Met in Chicago, following the sectional meeting of the American College of Surgeons, and went from there to Rochester, Minn., where they were guests of the Mayo Clinic for several days. On their return, they visited clinics in Chicago and Cleveland. This Club has eighteen members. Those on the trip this year were Drs. Jos. T. Buxton, Newport News: H. D. Howe, Hampton: E. C. S. Taliaferro and J. L. Rawls, Norfolk: P. W. Howle, W. L. Peple and W. T. Graham, Richmond: R. P. Bell, Staunton, J. C. Motley, Abingdon: and invited guests, Drs. Israel Brown and H. G. Ashburn, Norfolk, and Otis T. Amory, Newport News.

New President of Medical College of Virginia.

The Board of Visitors of the Medical College of Virginia, at its meeting on March 24, unanimously elected Dr. William T. Sanger, secretary of the State Board of Education, president of the College. He succeeds Dr.

Stuart McGuire who has for sometime advocated securing a full-time president for the institution. Dr. Sanger is a native of Rockingham County, Virginia, and has devoted much of his life to teaching. He will enter upon his duties the first of July, this year. Dr. McGuire will continue as a member of the board of visitors and of the executive committee of the College.

At this same meeting, Mr. Eppa Hunton, Jr., was elected president of the Board of Visitors, succeeding the late Judge George L. Christian.

Medical Student Heads Graduating Class, U. Va.

Staige Davis Blackford, of the Department of Medicine, has been elected president of the graduating class of 1925 of the University of Virginia. He is a son of the late L. M. Blackford, for many years headmaster of the Episcopal High School, and has taken an active part in athletics since he entered the University, several years ago.

Dr. Ramon D. Garcin,

Richmond, who has been quite sick at a local hospital, is reported as improved, as we go to press.

The American Society of Clinical Pathologists

Will hold its annual meeting in Philadelphia, May 21, 22 and 23, the week preceding the meeting of the American Medical Association in Atlantic City, so that those coming from a distance may plan to attend both meetings before returning home. Dr. John A. L. Kolmer, Philadelphia, is president, and Dr. Ward Burdick, Denver, Col., secretary-treasurer.

Dr. and Mrs. E. G. Brumback

And son, of Luray, Va., have been recent visitors in Washington, D. C.

Additions to Virginia Baptist Hospital.

Contract has been let for the erection of a nurses' home in connection with the Virginia Baptist Hospital, Lynchburg, Va., the building to cost $36,000. It is to be the gift of O. B. Barker, of that city. Arrangements are also being made to finance the erection of the second unit of the hospital plant.

Child Health Day.

May 1st, this year, will witness throughout the entire country a continuous series of local celebrations, pageants, plays, games or contests, all having as their motive the foscussing of attention on the needs of children.

Dr. Mary E. Brydon, Director of Child Welfare, of the Virginia Board of Health, is the State Director of this year's effort. She has formulated plans suitable for any community in Virginia. The larger cities and the more populous rural districts are able to undertake a program which would be impossible for small towns or sparsely settled sections; but Dr. Brydon has made a digest of the numerous proposals for celebration, and she is able to advise any community so that the best advantage can be taken of local opportunities. She will welcome questions from mothers' clubs, women's associations and, in fact, any style of organization that is concerned in helping to preserve and improve the nation's greatest asset—the children.

Miniature Playground.

A miniature model of a five-acre playground for city children has been constructed for the Children's Bureau and will be displayed as part of the bureau's exhibit at the International Council of Women meeting in Washington this spring. The model, planned by the Recreation Expert of the Children's Bureau, is an exact reproduction to scale of a playground adequately equipped for daily use by approximately 300 boys and girls. It contains a miniature swimming pool, a shelter house, two tennis courts, a basketball court, a large baseball diamond, a smaller diamond, a wading pool for little children, seats for the story hour, swings, ladders, flying rings, sand boxes, and all other needed equipment. Tiny figures of children engaged in the various sports are part of the model.

Congress of American Physicians and Surgeons.

This Congress, composed of the members of a number of National societies, meets in Washington, D. C., May 5 and 6, with headquarters at the Washington Hotel. All physicians are invited to attend the meetings of the Congress and the public meetings of the various societies, but only those may register who are members, specially invited guests, or visitors accredited through secretaries of the constituent societies. Dr. A. R. Shands, 901 Sixteenth Street, Northwest, Washington, D. C., is charman of the local committee of arrangements. He or some member of his committee will take pleasure in answering any in-

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quiry relating to the local arrangements of the Congress.

Dr. William J. Mayo, Rochester, Minn., is president of the Congress, and Walter R. Steiner, Hartford, Conn., secretary.

Dr. Charles Y. Bidgood,

Who came to Richmond about a year ago, with a view to making this his future home, has just moved to Hartford, Conn., in response to a very flattering offer received by him.

Dr. and Mrs. Stuart McGuire,

Richmond, are home again, after a visit to Magnolia Gardens, near Charleston, S. C.

Lt. Toson O. Summers, M. C.,

Formerly of Richmond, but now chief medical officer on the U. S. S. "Richmond," narrowly escaped death recently, in an accident which cost the lives of two officers in Guantanamo Bay, Cuba. Fourteen officers were returning to the "Richmond" in a motor launch, when it capsized in a heavy sea and all of its occupants were thrown overboard. Lt. Summers was among those rescued later by a passing boat.

Last Announcement for Registration on the Inter-State Post-Graduate Assembly Clinic Tour of American Physicians to Canada, British Isles and France.

The medical profession of America who are in good standing in their State Medical Societies and members of their families are cordially invited to participate in the Inter-State Post-Graduate Assembly clinic tour to Canada, British Isles and France, leaving Chicago May 17 and sailing from Montreal May 23. There is no restriction to territory. Dr. Charles H. Mayo of Rochester, Minnesota will be the presiding officer of the tour and Dr. William B. Peck, of Freeport, Illinois, Managing-Director.

The tour is being conducted as the result of an invitation extended to the American physicians through this Association by the leading universities and medical institutions of Canada, British Isles and France. Clinics will be held for the visitors in the various cities visited, and these will cover every branch and specialty of medical science. The price of the tour, including traveling expenses is under $1,000. In addition to the clinics, numerous social functions will be tendered the doctors and their families.

Two fine new one-cabin ships with excellent appointments have been chartered to take the physicians abroad. Reservations can be made by sending the reservation fee of $65.00 per person to Dr. William B. Peck, Managing Director, Freeport, Illinois. There are plenty of first-class accommodations available.

The registration March 17th was 375 physicians and total number, including members of the physicians' families 625. Forty-one states are represented, and quite a number of provinces of Canada.

Lee County Medical Society,

Dr. C. C. Pearce, Pennington Gap, Va., has been elected president, and Dr. J. B. Muncy, Jonesville, has been re-elected secretary of the Lee County Medical Society. This society reports that it is active in spite of the fact that it has only ten members and that they are widely separated.

The American Urological Association

Will hold its annual meeting in St. Louis, May 21-23, with headquarters at Hotel Chase. Information about this meeting may be obtained from the secretary, Dr. Homer G. Hamer, Indianapolis, Ind.

The American Board of Otolaryngology

Will hold its first examination during the meeting of the American Medical Association in Atlantic City, May 25th to 28th.

According to the rules of the Board, applicants are divided into three classes.

Class I. Those who have practiced Otolaryngology ten years or more.

Class II. Those who have practiced Otolaryngology five years and less than ten years.

Class III. Those who have practiced Otolaryngology less than five years.

The type of examination is different for each class.

The Secretary, Dr. Hanau W. Loeb, 1402 South Grand Boulevard, St. Louis, Mo., announces that thus far over three hundred applications have been made.

The National Association for the Study of Epilepsy,

Of which Dr. G. Kirby Collier, Rochester, N. Y., is president, and Dr. Arthur L. Shaw, Camden, N. Y., secretary, will hold its annual meeting in Richmond, Va., May 11 and 12, immediately preceding the sessions of the American Psychiatric Association. At the former meeting, papers on the subject of epilepsy will be presented by Drs. Mennin-

gers, L. Pierce Clark, Damon, Gibbs, Tucker, Patterson and others.

The American Psychiatric Association

Will hold its eighty-first annual meeting in Richmond, Va., May 12-15, immediately following the meeting of the National Association for the Study of Epilepsy. Jefferson Hotel will be headquarters for this meeting, and Dr. James K. Hall, Westbrook Sanatorium, Richmond, is chairman of the local committee of arrangements. Dr. William A. White, Washington, D. C., is president, and Dr. Earl D. Bond, Philadelphia, secretary of this Association.

Dr. Howard L. Mitchell,

After a sixteen months' service at the Episcopal Eye and Ear Hospital, Washington, D. C., and additional work at the New York Eye and Ear Infirmary, has located at 154 West Main Street, Danville, Va., where he is associated with Dr. J. W. Tipton. Their practice is limited to diseases of the eye, ear, nose and throat.

Prior to taking up this special work, Dr. Mitchell was engaged in general practice at Callands, Va.

Dr. J. Allison Hodges Improved.

The many friends of Dr. J. Allison Hodges, throughout this State and North Carolina, will be pleased to learn that he is apparently regaining his health after several months' illness. Dr. Hodges was taken ill about last Thanksgiving Day and was taken to Stuart Circle Hospital, this city, where he was attended by Dr. A. G. Brown, Jr. For a time the daily press recorded the extreme gravity of his condition. Dr. Hodges will soon take up his duties in practice.

Dr. H. T. Hopewell,

Strasburg, Va., was a visitor in Washington, D. C., last month.

Dr. and Mrs. J. N. Barney,

Who were recently called to Woodstock, Va., on account of the illness and death of Mrs. Barney's mother, returned to their home in Fredericksburg, Va., early in March.

Married

Dr. Thomas Preston White, Charlotte, N. C., and Miss Henrietta Tucker, daughter of Mr. and Mrs. Henry St. Geo. Tucker, of Lexington, Va., at Winter Park, Fla., March 21. Dr. White is a son of Dr. Reid White, of Lexington, Va.

Dr. J. W. Williams, Irwin, Va., formerly of Richmond, and Mrs. Mary Stamper Rayner, Fredericksburg, Va., March 31.

Dr. Arthur H. Deekens,

Richmond, Va., announces removal of his offices to Room 709, Mutual Building, this city.

The Southside Virginia Medical Association

Held its regular quarterly meeting in Norfolk, March the 10th, Dr. H. M. Snead, of South Hill, presiding. There was a good attendance, a splendid program was enjoyed by those attending, and the papers were freely discussed. Dr. R. L. Raiford, Sedley, is the efficient secretary of this Association. A pleasant feature of the meeting was an oyster roast given by the Norfolk doctors at Truitt's Farm. In the evening, the wives of the Norfolk members entertained the visitors with a delightful supper. The next meeting is to be held in Suffolk on the second Tuesday in June.

Dr. Henry H. Wescott,

Of the class of '18, Medical College of Virginia, after a post-graduate course at Massachusetts General Hospital, located, last Fall, in Roanoke, Va., where he is engaged in orthopedic work.

Dr. Alexander G. Brown, Jr.,

Associate professor of medicine, at the Medical College of Virginia, Richmond, by invitation, delivered a lecture before the Richmond Dental Society, on March 19th, his subject being "Some Solved and Mooted Problems of Internal Medicine." The meeting was well attended and considerable interest was shown in the subject discussed.

Dr. W. Nelson Mercer,

Formerly connected with the Bureau of Health of Richmond, is now with the U. S. Veterans' Bureau at Saranac Lake, N. Y., where he is one of a staff of six tuberculosis specialists to look after the four hundred and fifty tuberculous ex-service patients hospitalized in cottages there. Prior to March 1, 1925, these patients were attended by the doctors of Saranac Lake on a contract basis. The Bureau works in close co-operation with Trudeau Sanatorium for the X-ray part of the work.

Before entering upon his present duties, Dr. Mercer spent several months in Detroit, Mich., where he was supervisor of the Medical Service of the Detroit Tuberculosis Society.

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Dr. H. D. Ribble,

Of Blacksburg, Va., who has been spending some time at Mt. Hope, West Virginia, plans to return home about the first of May.

Dr. Robert Spilman,

Physician to the Virginia Military Institute, Lexington, expects to join a party on a European trip this summer.

Dr. and Mrs. D. M. Faulkner,

Richmond, are home again after a visit to relatives in Boydton, Va.

Superintendent of Epileptic Colony.

Dr. John H. Bell, for several years first assistant to the late Dr. A. S. Priddy, was elected superintendent of the Virginia State Epileptic Colony by the General Hospital, Board, at its meeting in Richmond, March 26. Dr. Bell graduated from Medical College of Virginia in 1910 and practiced at Bridgewater, Va., for several years before joining the staff of the Epileptic Colony.

Heart Disease has Supplanted Tuberculosis as the Greatest Man-Killer

Is an assertion made by Dr. Robert H. Halsey, of New York, in a paper presented to the American Association for the Advancement of Science at its last annual meeting in Washington, D. C. The statement is further substantiated by Dr. Stewart R. Roberts in a paper recently read before the Southern Medical Association in New Orleans, and by figures just given out for the year 1923 by the United States Department of Commerce. Dr. Roberts not only places heart disease as the most deadly destroyer of human life, but he also points to syphilis as one of the greatest causes of heart disease. It was also stated that syphilis is responsible for fifty-two per cent of all heart troubles.

Dr. Roberts said that there was no more excuse for having syphilis than leprosy; and that while a great portion of all heart diseases come from syphilis, the other portion comes from degeneration and afflictions of the rheumatic group, most of which, like syphilis, are entirely preventable. Syphilis has its most dangerous effects on the heart between the ages of forty-five and fifty-five, although it takes its toll at nearly all ages, said Dr. Roberts.

Both Dr. Halsey and Dr. Roberts advocated a wider dissemination of knowledge to dispel the ignorance from which nearly all diseases that lead to heart trouble are born.

Four Recovered Lepers Discharged from National Leprosarium.

Four lepers who went to U. S. Marine Hospital No. 66 Carville, Louisiana, the National Home for Lepers, a few years ago, have been discharged, according to a statement just made by Surgeon-General Hugh S. Cumming of the U. S. Public Health Service. The conditions under which lepers are released from this institution are exceedingly rigid. They require special observation for a period of one year, including monthly bacteriological examinations to show that the leprosy bacillus is absent from the tissues. Certification of cure is also reequired from a board of three medical officers stationed at the hospital and experienced in leprosy.

The treatment at Carville includes the use of chaulmoogra oil, special preparations of mercury used intravenously, X-ray therapy, surgery of superficial areas of involvement, hydro-therapy, and the violet ray. The results of treatment have been sufficiently encouraging at this institution to induce numerous other patients, of whom there are believed to be several hundred in the United States, to agree to their transfer. A special car fitted up for the purpose, and carrying a doctor and a nurse was used in the transfer last week of eleven patients from Florida, and seven were brought from California. There are at present 236 leper patients at Carville.

Dr. A. W. Graves,

Who has been practicing for sometime at Lacey Spring, Va., has moved to Harrisonburg, Va., with offices in the First National Bank Building. His work will be limited to the treatment of cases of goitre and general surgery.

The Medical Society of the State of North Carolina

Is to hold its annual meeting at Pinehurst, April 28-30, under the presidency of Dr. Albert Anderson, Raleigh. Dr. L. B. McBrayer, Southern Pines, is secretary-treasurer. urer.

New York Polyclinic Gives Testimonial Dinner to Dr. K. Winfield Ney.

The staff of the New York Polyclinic Medical School and Hospital, the pioneer postgraduate medical organization in America, on March 7th, at the Hotel Astor, gave a brillian testimonial dinner to Dr. K. Winfield Ney, Dean and Professor of Neuro-Surgery. The

dinner was given to Dr. Ney in appreciation of his services in the reorganization of the institution, and was attended by the trustees and 125 members of the teaching staff.

During the war, post-graduate teaching at Polyclinic was abandoned, its staff being greatly depleted by many of its members assuming military service. The Government took over the institution for the treatment of wounded soldiers, and because of lack of hospitalization facilities was unable to relinquish the institution until 1922, at which time it was returned to Dr. John A. Wyeth, its original founder.

At this time Dr. Wyeth was advanced in years and died before effecting a satisfactory reorganization. Without his leadership, the institution for the next two years passed through a rather uncertain period during which it made but little progress.

In the summer of 1924, Dr. Ney was placed in charge of Polyclinic and in a comparatively short time has succeeded in establishing a highly effectual post-graduate teaching organization. The Institution is now running full capacity and plans are being made to more than double its facilities.

The New York Polyclinic passed through an experience which was not unlike that of many of the medical men of the country, who gave up their practice and entered the service. After the war, they were greatly discouraged when they returned home and realized that while in the service they had apparently lost their following, but in almost every instance, after a relatively short period they became re-established and did better than ever before.

So with the Polyclinic: after two rather discouraging years of reorganization, it has come into its own and is doing more effectual work in post-graduate teaching than at any time in its history.

Dr. A. J. Hurt,

Chester, Va., has formally announced that he will be a candidate for the General Assembly, at the next election.

New Hospital for Fayetteville, N. C.

Dr. J. F. Highsmith has a half million dollar hospital under construction in Fayetteville, N. C., which will contain about 100 rooms. It is ideally located and will be complete in every detail.

Veterans' Bureau Hospitals Need Occupational Therapy Aides.

There are about twenty vacancies in positions of occupational therapy aide in hospitals of the United States Veterans' Bureau, and applications for these positions will be received by the U. S. Civil Service Commission, Washington, D. C., until April 30.

Full information and application blanks may be obtained from the Commission, or from the Secretary of the U. S. Civil Service Board at the post-office or customhouse in any city.

Dr. O. F. Blankingship,

Richmond, is out again, after having undergone operation for a bad case of appendicitis.

Dr. and Mrs. Charles V. Carrington

Returned to their home in Richmond, the latter part of March, after a visit to Atlanta, Ga.

Dr. Fred M. Horsley,

Who has been practicing for some years at Lovingston, Va., is now located at Berryville, Va.

Dr. Frank Helvestine, Jr.,

Who graduated from University of Virginia in 1922 and has been instructor in the department of surgery there, is now connected with the staff of Shenandoah Hospital, Roanoke, Va.

The Southwestern Virginia Medical Society

Held its semi-annual meeting in Pulaski, March 26 and 27, under the presidency of Dr. F. H. Smith, of Abingdon. Interesting papers were read by members and several invited guests. "Diseases of the Heart" was the subject for general discussion. The following doctors were admitted to membership at this meeting: Drs. J. S. Bachman, Bristol, Tenn.; W. H. McCarty, Marion; J. Randolph Chitwood, Ivanhoe; R. W. Cannaday, Spring Garden; E. A. Holmes, Broadford, and H. R. Farley, Pulaski. The annual meeting of the society will be held in the early Fall. Dr. E. G. Gill, Roanoke, is secretary of this society.

The Association of American Medical Colleges,

At its annual meeting in Boston, last month, elected Dr. Hugh Cabot, of Ann Arbor, Mich., president: Dr. David L. Edsall, of Boston, vice-president: and re-elected Dr. Fred C. Zapffe, of Chicago, secretary. The next meeting will be held in Charleston, S. C., October 26-28, 1925.

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Dr. and Mrs. John Randolph,

Of Arvonia, Va., have returned home after a visit to Richmond in March.

Dr. E. R. Ferguson,

Of Harrisonburg, Va., is taking a post-graduate course in diseases of the eye, ear, nose and throat, at the New York Polyclinic Medical School and Hospital, New York, City.

The American Society for the Control of Cancer,

At its annual meeting on March 7, elected Dr. Howard Canning Taylor, of New York, president, Dr. Francis Carter Wood, New York, vice-president, and re-elected Mr. Thomas M. Debevoise and Mr. Calvert Brewer, secretary and treasurer, respectively. Since the death of Dr. Powers in December, 1922, Dr. Taylor has served as acting president and chairman of the executive committee. He is one of the founders of the Society and one of the leading gynecologists of this country.

Dr. Dean Lewis Accepts Position at Johns Hopkins.

Dr. Dean Lewis, chief surgeon at the University of Illinois, has accepted a similar post at Johns Hopkins University, Baltimore, and will enter upon his duties next September. Dr. Lewis is recognized as one of the leading surgeons of the country.

Dr. and Mrs. Elisha Barksdale

Have returned to their home in Lynchburg, Va., after a visit to New York.

Dr. M. W. Sinclair,

Class of 1916 Medical College of Virginia, has recently become associated with the Bluefield Sanitarium, Bluefield, W. Va., as pathologist. Dr. Sinclair, after graduation, was intern at the Polyclinic Hospital, Philadelphia, and later did special work in pathology at the Rockefeller Institute, New York, the Phipps' Institute, Philadelphia, and Department of Surgical Pathology, Johns Hopkins Hospital. Dr. Sinclair served overseas in the World War doing bacteriology and serology in Base Hospital Center at Nantes. In becoming associated on the staff of the Bluefield Sanitarium, Dr. Sinclair's work is limited entirely to pathology.

The Gorgas Memorial Institute

Seems to be accomplishing its initial purpose of uniting laymen and doctors, and instilling into the masses a recognition of the fact that scientific medicine is the only proper authority in health matters. The value of periodic health examinations is a subject that the foundation is stressing in hundreds of newspaper articles, in public talks and in radio addresses, the country over.

Scores of editorials have been written and published by leading newspapers. Without exception they have deep sympathy with the ideals of the organization and heartily endorse it.

The County Societies are also proving receptive to the Gorgas Idea, and see in the movement a plan which will aid each member individually.

Medical Center of New York City.

The work on the Medical Center which was initiated through the combined efforts of the Columbia University and the Presbyterian Hospital in the City of New York, is making steady progress. The Joint Administrative Board reports that the excavation for the combined School and General Hospital Building is now advancing rapidly, and that contracts for the steel, brick, sand and gravel have been awarded and that work on the foundation will commence May first.

There have recently been two important additions to the Center. The Babies' Hospital and the Neurological Institute of New York have both signed agreements with the Joint Administrative Board and will receive land for the erection of their new institutions as a part of the Medical Center.

The Babies' Hospital which is at present located at 55th Street and Lexington Avenue, is unique in its field as it is the only institution which up to this time has devoted its effort exclusively to children under four and one-half years of age. It is well known also through the work of the late Dr. L. Emmet Holt, and its research work in feeding and surgery of infants. In the new Center the scope of the Babies' Hospital will be expanded to include older children.

The Neurological Institute of New York which has just completed its fourteenth successful year is equally unique in the medical field. It is the first co-operative effort of a Neuro-Psychopathic group in America to meet the growing need for treatment and study of the neurosis and early mental disorders among the working classes. The growing menace of this increasing group of nervous disorders has been met with their limited facilities, not only

by treatment but by research and the training of physicians and nurses in the care of this particular type of individual.

The Joint Administrative Board is at the present time composed of: General William Barclay Parsons, Chairman; Dean Sage, Robert W. de Forest, Walter B. James, Edward S. Harkness, John G. Milburn, John Sherman Hoyt, Robert Thorne, with Dr. William Darrach, Dean of the Medical School, acting in an advisory capacity; and Dr. C. C. Burlingame as Executive Officer.

Civil Service Examinations.

Open competitive examinations are announced for the following:

Physiotherapy aide, physiotherapy pupil aide, and physiotherapy assistant, receipt of applications to close May 9 and June 13.

Graduate nurse and graduate nurse (visiting duty), applications to be rated as received until June 30.

Junior medical officer, assistant medical officer, associate medical officer, medical officer, and senior medical officer, applications for these positions to be rated as received until June 30.

Full information and application blanks for any of the above may be obtained from the U. S. Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. Civil Service Examiners, at the post-office or customhouse in any city.

Bulletin of the New York Academy of Medicine.

The first number of Volume I, Second Series, made its appearance in March, and is a credit to the Academy. As early as May, 1850, the New York Academy of Medicine agitated ways and means for publishing its proceedings. Since then, at various intervals severals plans have been tried, but all were more or less short-lived. During the past few years the activities of the Academy have increased so considerably, that the present Bulletin was deciced upon. It will contain from time to time, lectures, discussions and papers presented at the Academy and it will be used also as the official medium for presenting recommendations, reports and the various activities of the Academy. Dr. Charles L. Dana is chairman of the present committee on publication.

Progress Made in Control of Cancer.

Dr. George A. Soper, managing director of the American Society for the Control of Cancer, in his annual report, presented evidence to show that the efforts of the Society to acquaint the public with the early symptoms of cancer in order that those affected might receive early treatment had borne fruit throughout the country. Reports from the State chairmen showed that patients were going to physicians earlier and consequently had better prospect of cure. The report showed that the Society had done excellent work among the public and members of the medical and dental professions. It was recommended that "cancer weeks" be generally held and that the good work being done in some states be duplicated elsewhere in the country.

Atlantic City Meetings.

The American Laryngological, Rhinological and Otological Society has completed arrangements for its 1925 convention which it will hold at The Ambassador, May 22-25. The American Proctologic Society and the Association for the study of Internal Secretion will also meet at that hotel directly following the L. R. and O.

From advance reservations already received, officers of the three societies believe that the attendance will be the largest in the history of the organizations.

The Association of Surgeons of the Southern Railway

Will hold its annual meeting in Savannah, Ga., May 12, 13 and 14, under the presidency of Dr. H. R. Black, of Spartanburg, S. C. An excellent program is being arranged.

Child Labor in Argentina.

Argentina passed a child labor law applying to the entire country on September 30, 1924. Under the new law fourteen is the minimum age for employment in any industrial or commercial establishment. Children under eighteen may not be employed more than six hours a day and thirty-six hours a week—a higher standard than exists in any State in the United States. Night work and employment in certain dangerous occupations are prohibited for boys under eighteen years of age and women of all ages.

Maternity and Infancy, Vermont.

The Vermont legislature voted during the last week in February to accept the provisions of the Federal Maternity and Infancy Act, bringing the total number of States co-operating with the National Government under this Act up to forty-two.

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Working Mothers, Switzerland.

Under the Swiss Federal Factory Act of 1919, any woman worker who has household responsibilities may request a Saturday half holiday, and her employer must grant the request. This section of the Act went into effect January 1, 1925.

Wanted.

Assistant physician, mental diseases. Salary, $1,800-$2,000 a year.

Apply State Employment Commission, 22 Light Street, Baltimore, Maryland. (Adv.)

Obituary

Dr. Silas M. Stickley,

One of the few remaining old time family doctors of Frederick County, died at his home in Stephens City, Va., March 20, death being due to paralysis. He was born at Strasburg, Va., seventy-three years ago and studied medicine at the College of Physicians and Surgeons of Baltimore, from which he graduated in 1879. He had been a member of the Medical Society of Virginia since 1894. He was also a Mason and a member of several fraternal organizations. He had practiced in Stephens City for forty-five years and had on different occasions served as magistrate, councilman and mayor of that place. He is survived by his second wife and several children by a former marriage.

Dr. Thomas J. Kagey,

Of Newport News, Va., died on February 26, as the result of a stroke of apoplexy which he suffered the previous day, while playing golf. He was born at Quicksburg, Va., in 1880, and upon completion of his academic education, he studied medicine at Jefferson Medical College from which he graduated in 1904 and became a member of the Medical Society of Virginia in 1906. He served in the medical corps of the army during the World War, after which he resumed his practice in Newport News. His wife survives him.

Dr. Frederick C. A. Kellam,

Pungoteague, Va., died at his home in that place, January 5. He was seventy-nine years of age, and graduated from the University of Maryland, School of Medicine, in 1866.

Dr. Arthur Wesley Greene,

Ahoskie, N. C., a graduate of the University College of Medicine, Richmond, in 1904, died at a Norfolk, Va., hospital, February 4, at the age of forty-six years. He was a member of the Medical Society of the State of North Carolina.

Dr. Thomas Graham Faulkner

Died at his home at Kinston, N. C., February 6. He was thirty-eight years of age and studied medicine at the University College of Medicine, Richmond, graduating in 1910.

Dr. Thaddeus O. Joyner,

Of Severn, N. C., died in Suffolk, Va., March 21, death being due to pneumonia. He was forty-eight years of age and a graduate of the University College of Medicine, Richmond, in 1899. He is survived by his wife and three children. The body was taken to Severn for interment.

Dr. Walter T. Williamson,

A trustee of the American Medical Association since 1920 and chairman of the Board since June, 1924, died suddenly at his home in Portland, Ore., March 2, death being due to myocardial degeneration and angina pectoris. He graduated from the University of California Medical School in 1877 and had lived in Oregon since 1889, where he specialized in nervous and mental diseases. He was a prominent member and ex-president of his State Medical Association and represented the Oregon State Society in the house of delegates of the American Medical Association for several terms.

Professor August von Wassermann,

Director of the Kaiser Wilhelm Institute for experimental therapy and professor of internal medicine at the University of Berlin, died in Berlin, March 16. He was fifty-nine years of age and was one of Germany's greatest medical research men. He was known throughout the medical world as the originator of the Wassermann blood test.

Mrs. Leonora C. Trout,

Wife of Dr. Hugh H. Trout, of Roanoke, Va., died at her home in that city on March 16th, after a protracted illness with leukemia. Mrs. Trout was the daughter of Mr. and Mrs. Charles H. Cocke, of Hollins, Va., and a graduate of Hollins College. In addition to her husband, Mrs. Trout is surved by three children.